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## Regional Aspects of Attracting Investments into the Public-Private Partnership Projects in Russia

Master's Thesis by the 2<sup>nd</sup> year  
student Alena E. Vinnik

Research advisor:  
Associate Professor,  
Andrey E. Ivanov


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## ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

Я, студент второго курса магистратуры, Винник Алёна Евгеньевна, направления «Государственное и муниципальное управление», заявляю, что в моей магистерской диссертации на тему «Региональные аспекты привлечения инвестиций в проекты государственно-частного партнерства в России», представленной в службу обеспечения программ магистратуры для последующей передачи в государственную аттестационную комиссию для публичной защиты, не содержится элементов плагиата.

Все прямые заимствования из печатных и электронных источников, а также из защищенных ранее выпускных квалификационных работ, кандидатских и докторских диссертаций имеют соответствующие ссылки.

Мне известно содержание п. 9.7.1 Правил обучения по основным образовательным программам высшего и среднего профессионального образования в СПбГУ о том, что «ВКР выполняется индивидуально каждым студентом под руководством назначенного ему научного руководителя», и п. 51 Устава федерального государственного бюджетного образовательного учреждения высшего профессионального образования «Санкт-Петербургский государственный университет» о том, что «студент подлежит отчислению из Санкт-Петербургского университета за представление курсовой или выпускной квалификационной работы, выполненной другим лицом (лицами)».


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## STATEMENT ABOUT THE INDEPENDENT CHARACTER OF THE MASTER THESIS

I, Vinnik Alena Evgenyevna, second year master student of the program Public Management, state that my master thesis on the topic "Regional Aspects of Attracting Investments into the Public-Private Partnership Projects in Russia" which is presented to the Master Office to be submitted to the Official Defense Committee for the public defense, does not contain any elements of plagiarism.

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Vinnik A. E.   
23.05.2017

## АННОТАЦИЯ

Автор	Винник Алёна Евгеньевна
Название магистерской диссертации	Региональные аспекты привлечения инвестиций в проекты государственно-частного партнерства в России
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Научный руководитель	Кандидат физико-математических наук, доцент Иванов Андрей Евгеньевич
Описание цели, задач и основных результатов	<p>Целью данной работы является выявление ключевых факторов успеха ГЧП, стимулирующих вовлечение частного сектора в ГЧП в регионах России.</p> <p>Достижение поставленной цели предполагает решение следующих задач:</p> <ul style="list-style-type: none"> <li>- Выяснить, какие ключевые факторы успеха ГЧП выделяются в литературе, и проверить, значимы ли они для инвесторов в рамках российской бизнес среды.</li> <li>- Проанализировать, как инвесторы оценивают уровень развития ключевых факторов успеха ГЧП в регионах России.</li> <li>- Определить, существует ли статистически значимая взаимосвязь между статусом вовлеченности инвесторов в оказание государственных услуг и тем, как они оценивают уровень развития ключевых факторов успеха ГЧП в регионе.</li> <li>- Составить региональный «портрет» инвесторов, а именно, определить для каждого региона ключевые факторы успеха ГЧП, которые являются значимыми для инвестора при принятии решения об участии в оказании государственных услуг.</li> </ul> <p>Резюмируя результаты исследования, следует выделить финансовую жизнеспособность проекта, общественную и государственную поддержку, качество технико-экономического обоснования проекта и процесса отбора частного партнера, как наиболее распространенные ключевые факторы успеха ГЧП. При этом респонденты, (более 1000 человек), оценивают уровень общественной поддержки выше, чем государственной. В регионах, где ГЧП наименее развито, инвесторы, участвующие в оказании государственных услуг, оценивают общий уровень развития ГЧП в регионе выше, чем те инвесторы, которые не принимают участия в оказании государственных услуг. Более того, чем выше уровень развития ГЧП в регионе, тем меньше выделено ключевых факторов успеха ГЧП, которые значимы для инвесторов на этапе принятия решения об участии в оказании государственных услуг.</p>
Ключевые слова	Государственно-частное партнерство, ключевые факторы успеха, оценка вовлеченности бизнеса в ГЧП

## ABSTRACT

Master Student's Name	Vinnik Alena Evgenyevna
Master Thesis Title	Regional Aspects of Attracting Investments into the Public-Private Partnership Projects in Russia
Faculty	Graduate School of Management SPbU
Main field of study	Public Management
Year	2017
Academic Advisor's Name	Candidate of Physics and Mathematics, Associate Professor, Ivanov Andrey Evgenyevich
Description of the goal, tasks and main results	<p>The main purpose of the paper is identification of PPP Critical Success Factors boosting private sector involvement in PPP projects in the Russian regions.</p> <p>The following objectives are defined:</p> <ul style="list-style-type: none"> <li>- To determine what PPP Critical Success Factors are most widespread in the literature and check whether they matter in terms of the Russian reality.</li> <li>- To analyze how business estimates PPP Critical Success Factors in different Russian regions.</li> <li>- To detect whether the business representatives who are involved in provision of public services in the region and those who are not involved differ in their evaluation of Critical Success Factors.</li> <li>- To make a regional “portrait” of the Russian investor from the aspect of his attitude to the factors which are critical to the PPP project success.</li> </ul> <p>Summing up the paper results, the most widespread PPP Critical Success Factors in the literature are Financial Availability, Social and Government Support, Project Feasibility and Transparent Selection Process. Interesting, that investors evaluate Social Support more positively comparing with how they assess Government Support level and in less PPP-developed clusters participators in general evaluate factors' conditions better. Moreover, the higher level of PPP development is the fewer factors to which investors are sensitive to.</p>
Keywords	Public-Private Partnership, Critical Success Factors, Evaluation of Business involvement into PPP

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## **Introduction**

On the assessment of world economists, Public Infrastructure Investments are able to pay for themselves. Cost of a dollar generated by Public Investments is less than a cost of a dollar flown in the economy at the expense of government tranche, equity financing or tax subsidy (Summers 2014). Moreover, Public Infrastructure Investments attract Private Investments into related projects around this infrastructure.

The Public-Private Partnership is a convenient mechanism to sophisticate the process of involving investors into the infrastructure projects.

However, it is important to understand that PPP contracts, especially, concession agreements are mainly long-term projects. As a rule, predictability is indispensable for long-term projects. That is why one of the directions of the Government's Action Plan<sup>1</sup> is the creation of general predictable conditions, both from the point of view of macroeconomics and from the point of view of microeconomic activity (Department of Investment Policy and Public-Private Partnership Development, Ministry of the Economic Development of the Russian Federation 2017). It is vital to successful business engagement into PPP to determine conditions under which investors would prefer operate.

Specification of the existing Russian methods allowing evaluation of those regional conditions can lead to the lack of "customization" in PPP policy in terms of business implication. Client-oriented methodology should aim assessment of the PPP Critical Success Factors from the position of investors and detect which factors matter for the private partner in decision-making. The basic regional assessment methods, the PPP development regional rating (Association "PPP development center") and the National rating of the investment climate in the regions of Russia (the Agency of Strategic Initiatives) are directed on the evaluation of executive bodies' efforts on the PPP development in the regions of Russia.

The main purpose of the paper is identification of PPP Critical Success Factors boosting private sector involvement in PPP projects in the Russian regions.

In order to determine the possibilities of achieving this purpose it is necessary to answer the main research question, in particular, whether there is similar interrelation between investors' attitude to the level of PPP Critical Success Factors' development in the region and their involvement in the provision of public services there for the low and high PPP-developed regions.

The initial research hypothesis is that investors who participate in the provision of public services and investors who do not take part differ in their perception of the certain risks' power.

## **Research objectives**

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<sup>1</sup> Government's Action Plan for 2017. URL: <http://government.ru/docs/25996/>

1. To determine what PPP Critical Success Factors are most widespread in the literature and check whether they matter in terms of the Russian business environment.
2. To analyze how business estimates PPP Critical Success Factors in different Russian regions.
3. To detect whether the business representatives who are involved in provision of public services in the region and those who are not involved differ in their evaluation of Critical Success Factors.
4. To make a regional “portrait” of the Russian investor from the aspect of his attitude to the factors which are critical to the PPP project success.

The research object is the business Involvement Status in provision of public services in the regions of Russia.

The subject is connection between private sector’s perception of PPP Critical Success Factors and readiness to participate in provision of public services in the Russian regions.

Theoretically, the paper contributes to the pull of information required for creating a government PPP development policy directed on attracting investors into PPP projects in the Russian regions. The practical output presents a regional investors’ portrait toward their PPP Critical Success Factors’ evaluation. This summarizes the PPP Critical Success Factors which are associated with investors’ decision to participate in PPP at the regional level.

The research is based on both qualitative and quantitative methods. Chapter 1 is a qualitative analysis implying summary of approaches to the PPP project Critical Success Factors. Revealing of the essential conditions making the PPP project implementation successful is fundamental to this paper concerning its main purpose. The first paragraph reflects theoretical concepts of Critical Success Factors as well and summarizes universal factors meaningful through the whole PPP process. The second paragraph presents description of the PPP project stages and their specifics including Critical Success Factors relatively to each stage.

Chapter 2 synthesizes existing PPP success evaluation methods both in project and regional authority effectiveness. The first paragraph in this Chapter is an overview of different assessment methods and it results in PPP success evaluation methods classification based on formulated criteria. The next paragraph investigates presence of PPP effectiveness assessment methods which comply with two criteria simultaneously: 1) applicable at the regional level 2) business-oriented. The last paragraph of Chapter 2 explains research methodology applied to answer the main research question in terms of Master’s thesis writing. Proposed there econometrical method of analyzing categorical data fits methodology criteria claimed above.

The Chapter 3 is a practical implementation of announced methodology. The first paragraph demonstrates descriptive statistics. This makes a picture of how investors evaluate

Financial Availability of PPP, quality of selection process, regional legislation and other critical factors in formed clusters. Those clusters group more than one thousand respondents from 37 Russian regions participating in the survey. The next paragraph is econometrical testing of hypothesis about association between factors' evaluation and participation in provision of public services within clusters. The last paragraph provides by results of research with a regional investor's portrait characterizing which Critical Success Factors are significant in investors' decision making about participation in PPP in observed regions.



## 1. THEORETICAL CONCEPTS OF PPP CRITICAL SUCCESS FACTORS

### 1.1 Universal Critical Success Factors in PPP

Chapter 1 is dedicated to the plurality of points of view on the PPP Critical Success Factors. The first paragraph explains a notion of the Critical Success Factors (CSFs) and accumulates universal PPP Critical Success Factors prevailing in the literature. In research context, universality of PPP Critical Success Factor presumes that this factor is equally important through all PPP project steps. For examples, project economic viability matters for the investors during the whole implementation process. Therefore, such PPP Critical Success Factor is defined as universal. In turn, the second paragraph explores PPP specifics and focuses on the PPP Critical Success Factors in relevance to PPP project stages. In this case, the factor is considered to be specific if its presence is more important for success on some particular stage, as, for example, Transparent Selection Process is vital to successful tendering.

The pioneers of CSFs interview method, Bullen and Rockart (1981, 7) characterize CSFs as “the few key areas where “things must go right” for the business to flourish and for the manager’s goals to be attained”. With regard to the more recent papers, the concept is very similar: CSFs are defined as core elements included in process of achieving target results by the organizations (Madar and Hamid 2014). Researches on the organization’s CSFs can result in a guide for the organization to measure its success (Borman and Janssen, 2013). In other words, CSFs represent a number of core points to concentrate on achieving success. Success can be measured in different ways and one of the mostly used interpretations is that project success measure is a degree of getting project’s desirable outcomes (Osei-Kyei et al. 2017).

The nature of CSFs is following. Whether the factor is critical is determined by manager’s “subjective judgement” (Bullen and Rockart 1981, 11). The same point of view is supported nowadays by Węgrzyn (2016). There is no particular scheme of CSFs determination. According to Chan et. al (2010), a thorough literature review on PPP critical succeed factors has been done and CSFs vary on different levels of managing.

The summarizing Table 1 based on Chan et al. (2010) includes PPP Critical Success Factors most frequently mentioned in the literature from 1994 till 2006. Chan (2010) analyzed which Critical Success Factors are discussed most frequently in the literature for the period mentioned above. The main findings in refer to the articles analyzed are presented in the Table 1.

*Table 1 - Most widespread PPP CSFs from 1994 till 2006*

PPP Critical Success Factor	The authors	Number of citations
Competitive and transparent	Li et al.(2005), Jefferies (2006), Corbett and	7

procurement process	Smith (2006), Zhang (2005), Qiao et al.(2001), Jefferies et al. (2002), Gentry and Fernandez(1997).	
Project economic viability	Li et al.(2005), Abdul-Rashid et al.(2006), Corbett and Smith (2006), Zhang (2005), Qiao et al.(2001), Nijkamp et al.(2002), Tam et al.(1994), Tiong(1996),	8
Available financial market	Li et al.(2005), Corbett and Smith (2006), Zhang (2005), Jefferies et al. (2002), Akintoye et al.(2001).	5
Strong private consortium	Abdul-Rashid et al.(2006), Corbett and Smith (2006), Zhang (2005), Jefferies et al. (2002), Tam et al.(1994), Tiong(1996), Grant(1996).	7
Good partners' relationship	Abdul-Rashid et al.(2006), Corbett and Smith (2006), Zhang (2005), Tam et al.(1994), Grant(1996).	5
Strong Government Support	Abdul-Rashid et al.(2006), Corbett and Smith (2006), El-Gohary et al.(2006), Jamali(2004), Tam et al.(1994), Kanter(1999).	6
Stable and transparent political / social situation	Qiao et al.(2001), Nijkamp et al.(2002), Jamali(2004), Tam et al.(1994),	4
Appropriate project identification (Clear project brief and client requirements)	Jefferies (2006), Corbett and Smith (2006), Jamali(2004), Qiao et al.(2001), Tam et al.(1994), Tiong(1996).	6

Source: Based on Chan (2010).

Nowadays, researchers apply to different approaches to PPP Critical Success Factors interpretation. Further, there is an overview of recent publications on PPP CSFs dated 2009-2017.

One of the widespread PPP Critical Success Factors discussed in the literature is *stakeholders' credit* accompanying successful PPP project from the initiation's stage to the project completing (Chowdhury, Chen, and Tiong 2015). The authors analyzing PPP in power production mention decision-making factors for five major groupings by credit enhancement, such as shareholders, host governments, society, multi-lateral development banks, export credit agencies and other parties. For example, shareholders will appreciate transparency and easiness of the procedure of special purpose vehicle's registration and development banks will tend to

mitigating political risks in countries of capital inflows. In turn, failure to incorporate credit enhancement mechanism covering the interests of meaningful investors can lead to uncertainty of debt servicing to investors and, eventually, their unwillingness to participate in a project (Chowdhury, Chen, and Tiong 2015). The social factors are defined as Social Justice according to Cornelius and Wallace (2010), assuming that one of the best ways to detect whether the quality of good productions is satisfying is to attract society into justice procedures.

*Knowledge management* plays quite significant role in PPP success. Valuable lessons could be derived from previous projects and accumulated to avoid previous mistakes due to right risk allocation. Chou et al. (2012) use case study method to accumulate the relative importance of the potential Critical Success Factors in different countries and examine those in Taiwan infrastructure PPP projects. For instance, PPP pioneers in Great Britain underline such factors as a strong and good *private consortium, appropriate risk allocation and available financial market*. The risks identified by China researchers include *corruption, government intervention, expropriation and nationalization*.

Evaluation of *restrictive competition* in PPP projects with real options is suggested by Jicai Liu, Yu, and Cheah (2014). The main idea of restrictive competition is to make guarantees to investors that no other company will be allowed to build similar facilities, speaking, for example, about construction industry, during some period after PPP project launch. In the opposite case, if it turns out that market needs more service than it was anticipated before, the public side considers constructing new facilities despite agreement about restrictive competition to the initial facility. Such a scenario could be compensated accordingly. The value of compensation is the value of the real option owned by the project company. The scheme works in the following way: government guarantee payment is risk free and based on the market necessities. If it is surplus, the government will be paid taxes from private investor's extra revenue and observe restrictive competition rules. If market experiences shortage, the private investor will get financial compensation along appearing of new private investors at the existing market. As a real example of restrictive competition, in the Channel Tunnel project, the British and French governments promised to the project company that there will be no other similar projects during the next 33 years.

Another grouping of Critical Success Factors relates to the *Relationship Management* aspects. The Relationship Management main postulates focus on project performance and client-orientation in partnering. This approach maintains sustainable relationships between counterparties and creates superior value for the PPP project. *Developing sustainable partner relationships* is important because PPP contracts are often long-term and the circumstances

might change while project duration. Considering this assumption, the faster compromise will be found, the less risks of project breaks could be.

According to the empirical questionnaire survey by Zou et al. (2014) the critical factors to successful Relationship Management in PPP are *commitment and participation of senior executives, defining the objectives of the Relationship Management strategy and integration of the divisions of the organization*. At the same time, the survey findings reveal that the Relationship Management role in PPP is underestimated and the most difficult change is to increase senior management commitment.

However, the top management involvement should be stimulated as well as the synergy of interconnection between public and private sectors need to be developed. Their interaction becomes more and more interdependent that requires strong engagement of both parties.

Liu Jicai et al. (2016) address the issue of the incentives of the *opportunistic behavior* of the private investors in PPP projects. Research findings confirm the cause of opportunism and the authors come up with recommendations how to struggle for “win-win” relationship between principal and agents.

The principal-agent theory states that opportunistic behavior can appear when the information bridge between principal and agents has been damaged and principal side demonstrates low interest in its recovering.

Next condition for opportunistic behavior is separation of the ownership from the operating right<sup>2</sup>. The agent is interested in deriving as much profit as it is possible before giving authority right back. That is why agents do not care much about long-lasting socio-economic effect.

Another possible cause of opportunism is the situation when investors' choice to participate in the project is under the risk of uncertainty, for example, his behavior strongly depends on some environmental factors concerning the project output.

The empirical survey results demonstrate that investors' inclination to opportunism is bound to own interests. Moreover, opportunistic behavior has the tendency to be acquired by surrounding investors. Considering these facts, it is better to predict and prevent opportunism than to fight against it. That is why the principals are advised to create additional incentives for agents (Liu Jicai et al. 2016).

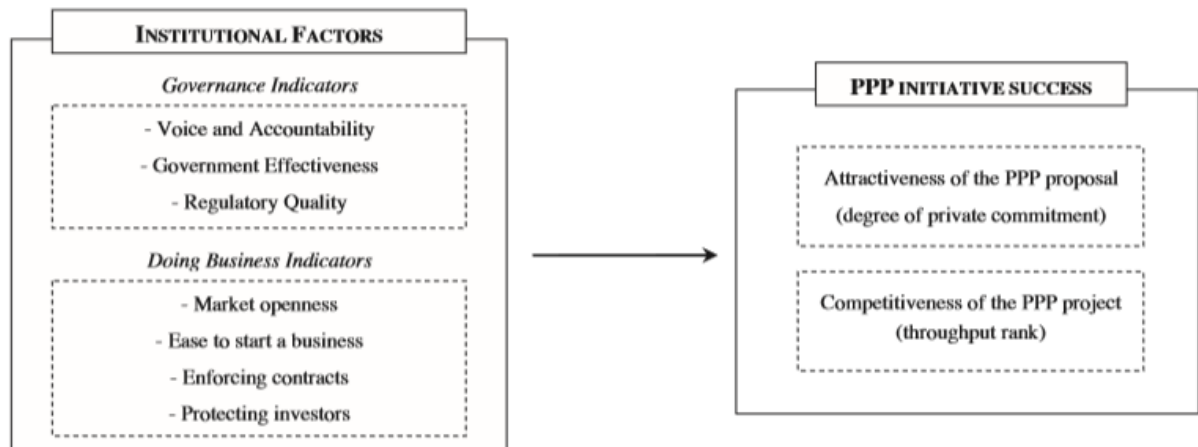
Investment attractiveness of PPP project also depends heavily on *institutional factors* (Deloitte 2009; Panayides, Parola and Lam 2014). The new institutional approach to studying Critical Success Factors in regard to PPP stages is presented in the next paragraph. However, it is

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<sup>2</sup> In the Federal Law on Concession № 115, the principal owns the facilities controlled by the agent. After project term is finished, the agent transfers back facilities to the principal.

very narrow application of new institutional economics to suggest that PPP institutional factors' are bound to specific PPP stages only. There are some basic determinants of PPP project success and attractiveness mentioned by institutional economists. Mostly, the governance (both normative and regulative) and market conditions define PPP project. There are governance indicators on the Figure 1 – Common institutional factors and PPP success (Panayides, Parola and Lam 2014).

*Figure 1 - Common institutional factors and PPP success*



Source: Panayides, Parola and Lam (2014).

Voice and accountability reflects the ability of citizens to participate in selecting their government. The second one, government effectiveness presents quality of public services and the last one, regulatory quality characterizes the implemented policies (Panayides, Parola and Lam 2014). Policies creating excessive transaction costs are not successful in making pleasant investment climate.

According to the Ernst & Young survey (2012), the main obstacles to a wider application of PPP in Russia are: non-compliance of federal legislation with modern requirements, poor quality of preparation of PPP projects and insufficient degree of readiness of the public and municipal authorities to realize Public-Private Projects and Municipal-Private Projects. It is interesting to note that representatives of the state bodies mark among the most important obstacles the underdevelopment of state institutions and their low degree of readiness to implement such projects.

In addition, underdeveloped government institutions are a signal of unhealthy governance system and existence of corruption. There is negative connection between the country's corruption level and investors' willingness to invest. This behavior is explained by the investors' belief that poor quality of institutions leads to high risks of investment (Mota and Moreira 2015).

Economic freedom, competitiveness and unemployment rate (doing business indicators) are important as well as legal framework (government indicators) in attractiveness of PPP project establishment (Panayides, Parola and Lam 2014; Mota and Moreira 2015).

Deloitte's Russian PPP market surveys (2009; 2010) pinpoint three main conditions of attracting investments into PPP projects: *well-developed regulatory framework*, *eligible financial instruments* for investors and a system for *allocating project risks* and *institutional framework* including transparent and flexible tender process, availability of supporting infrastructure, for example, financial advisers, technical consultants as well as state support in the form of coordination and guarantees. According to the company surveys, the main requirement of investors is predictability and they also identify the following Critical Success Factors of attracting investors: presence of high barriers to entry to the market, the term of the main project agreement should exceed the loan terms (10-20 years), guarantee of regional authorities to maintain a certain customer base, tariff level or other payments for the term of the loan agreement, calculation of tariffs, currency risk reduction and compensation for preparing training costs at the beginning of the project's operation stage.

To sum up, there are many approaches to Critical Success Factors attracting investors and the world practice confirms the effectiveness of PPP mechanisms in financing investments. Taking into account the positive experience, it seems necessarily not only to support the basic conditions for the use of PPPs, but also to realize the advantages presented by this mechanism, both for government bodies, and for business. For PPP participants it is important to have an interest in this form of cooperation. For state and municipal bodies the interest may consist of increasing the tax base, creating new jobs, etc. Private business can be interested in services, from the provision of which investors can receive income taking into account minimum or acceptable risks.

Distributing responsibilities between PPP participants should model the partnership in such a way to maintain control on the basis of a carefully drawn up document for target and regulatory regime for the provision of planned services.

Along with this, it is important to note that achieving the desired results of PPP will be guaranteed more if the work on the use of this mechanism will be systematized and well-organized.

To sum up, the recent publications contribute into the concept of PPP CSFs developing existing directions and focusing on new factors reflecting behavior patterns of PPP participators. Such factors as stakeholders' credit, strong private consortium, available financial market, competition (Bae and Yu-Min 2016) and Government Support follow the logic of CSFs discussed in the previous studies observed by Chan et al. (2010). Such trends as studying the

relationships between stakeholders, the nature of public partner's commitment and senior managers' engagement as well as accounting of social opinion triggered by development of Knowledge Management and Relationship Management in PPP.

## **1.2 PPP project's implementation process and its specific Critical Success Factors**

There are many approaches in the literature to the PPP stages terminology and Critical Success Factors influencing the project success on each particular phase. Basically, researches divide three general stages: project development, realization and operation (Zhang et al. 2015).

The first one, *Project Development* stage, summarizes preparation steps needed for project launch. Usually project development starts with the project initiation and ends up at signing the PPP contract with the awarded private investor. This is quite generalized approach because there are some meaningful steps below the process from PPP initiative to the private partner selection. The project initiative has to be provided with the project design resulting in business plan including precise project description with technical and economical characteristics.

Following the other core procedures at the project development stage, bidding goes after project design is approved. The competition is held to select the private partner and its specific depends on host country legislation. There are some basic PPP tenders' forms in the international practice: direct negotiation, competitive tendering and competitive negotiation. The first one takes a place when the idea and initial initiative comes from the private investor. The two last represent forms of competition when the project was initiated by the public partner (Liu, Wang, and Wilkinson 2016). There also can be some pre-qualification selection before bidding to check whether applicants comply with the requirements underlying for the project. This step is concerned as *Tendering* in PPP project chronology version of Liu, Wang, and Wilkinson (2016).

Some authors combine project design (feasibility stage) and tendering into the one stage defined as project development by Zhang et al. (2015). On the contrary, there are researches who divide project design and contract bidding into two separate stages called in different ways regarding their terminologies. For example, Ng, Yoki M.W. Wong, and James M.W. Wong (2012) suggest the first *Feasibility* stage devoted to project design and next *Tendering* as the second stage. Following this conception, Love et al. (2015) propose *Initiation and Planning* as the first PPP project stage, synthesizing feasibility study, definition of output and risk allocation and characterize the second stage as *Procurement* consisting of bidding, contract award and financial close.

Turning to Zhang et al. (2015) structure, the second stage, *Project Realization*, embraces design, construction and commissioning. Business plan approved at the project development stage is a guiding line but the estimates of capital construction and other costs should be

computed and presented respectively. Project Realization can be treated as *Managing Contract: Developing and Commissioning* in some practical PPP guidelines (APMG International 2017) or *partnership* aiming design, build operations and facility management (Love et al. 2015).

After contract is signed up with awarded private partner, the project is switching to the implementation (Project Realization and Operation stages according to terminology observed) and following exploitation supported by continuous monitoring and control.

However, project implementation is under the influence of some factors (CSFs) which could influence the process on different stages described above.

Such factors, as *institutions, modes of organization, game rules, market conditions, technology, and history*, influence the outcomes of PPP projects (Zhang, et al. 2015). Moreover, there are some specific factors which are deciding in each particular PPP stage.

One of the comprehensive explanations of PPP success factors in relevance to PPP project stages is the *New Institutional Economics Analysis*. According to Zhang, et al. (2015) some framework is helpful to determination of vital factors on separate stages and computes the whole picture of forces directing PPP process. Studying these forces makes it possible to change the PPP stages outcomes increasing the effectiveness of the project as a whole. The authors examine a facilitating institutional environment for developing PPP projects success in China context. They evaluate evolution of PPP development in China analyzing legal, cultural, administrative environment and dividing existing institutions into formal and informal.

The authors distinguish four levels of institutions concerning economic transactions and boundaries between PPP project stages.

The first level presupposes Informal Environment full of local traditions, habits and unwritten norms including business negotiation. Ignorance of informal institutes creates obstacles to partnering dialog between PPP project participants as well as between partners and final customers.

The second level is clearer defined and presents Formal Institutions factor embedding property rights, legal system, red tape, administrative units.

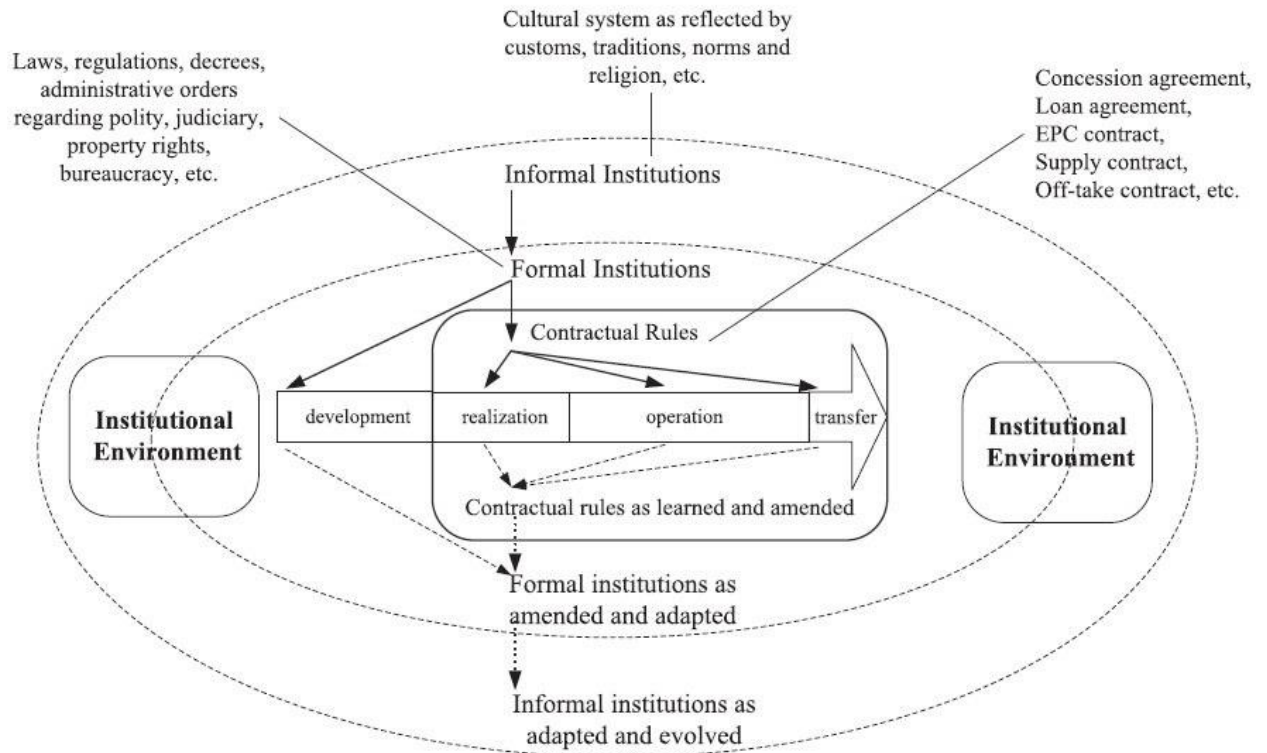
The third level covers Contractual Rules as loan agreements, supply contract and other deals supporting project implementation. Turning to PPP project chronology, formal institutions and contractual rules are unavoidable to deal with first of all on the project development and realization stages (Nisar 2013). Contract rules also spread further to realization and operation transactions.

The fourth level refers to Employment, Resource Allocation and Quantitative Issues, such as pricing and other calculations and matters in project operation.



*Figure 2 – PPP CSFs New Institutional Analysis's framework*

*S. Zhang et al. / International Journal of Project Management 33 (2015) 497–509*



Source: Zhang, et al. (2015)

Institutional framework of PPP Critical Success Factors' analysis allows determination of important conditions of PPP projects inhibiting or boosting project implementation. The authors assess the environmental impact particularly of formal and informal institutes on PPP development in China (Zhang et al. 2015).

Cognitive style in China is characterized by dominance of social mentality and Confucianism presuming that the main purpose in achieving social prosperity is to distribute common wealth equally but not to allow wealth product and multiply itself naturally. This conception affects PPP embedding in China. For example, the Beijing International Airport Toll Express Highway, a PPP (concession) project has encouraged debate on its excessive toll charges and exorbitant profit when the figures were disclosed by the press. Private participation is perceived like “privatization” in the eyes of the society creating negative image around PPP in China.

Another discovered problem is passing administrative procedures. The recent example of disagreement between administrative units in PPP development is light-rail PPP project approved by the City Development and Reform Commission (Grantor on behalf of the City Government). The project contract allowed commercial use of facilities as a financial subsidy to the investor. Nonetheless, when the investor made the project with office buildings on top of the

station terminal for sale as means for financing the project, the Urban Planning Bureau prohibited this activity because the land approved for the project could be used for the rail project only (Zhang et al. 2015).

Concerning these problems the authors advice investors in China to pay attention to the following things. High commitment to order and detailed laws requires signing up clear and elaborately complete contracts. Investors also need to check pitfalls of the administrative connections between the organizations involved in the project. Controversial relationships between some departments can embark some obstacles on implementation process.

Speaking about each particular stage separately, at the initial project development (Feasibility) stage, the “triple win” scenario is positioned as the basis of PPP projects’ success by Ng, Yoki M.W. Wong, and James M.W. Wong (2012) and represents tacking into account interests kept by public sector, private consortium and general community. Questionnaire statistical survey results indicate that the most critical factor for evaluating the Feasibility of PPP projects regarding general community is an acceptable level of tariff. *Cost Effectiveness* and *Financial Attractiveness* are the most important evaluation criteria ranked by the public sector and private consortium respectively.

Keeping balance of interests during long time is challengeable for Value-for-Money approach because stakeholders’ interests can change over time under financial, political, legal and social factors. Financial and commercial factors address existence of service need, government guarantee, existence of a strong team of consortium members, profitability of project, stability of economic environment in the country, and ability of project to attract capital; Political and Legal factors treat first of all stability of political environment in the country, experience of government in PPP schemes and transparency of procurement system; Social factors presume public acceptance of the project, consistency of project with environmental issue, and price of service (Ng, Yoki M.W. Wong, and James M.W. Wong 2012).

The following important stage, *Tendering* (selecting a competent firm or consortium with a sound technical solution) is based on value for money for the proposed projects.

The quality and effectiveness of tendering procedures reflecting in value for money depends on some conditions and varies by countries. Liu, Wang, and Wilkinson (2016) identified critical factors affecting the effectiveness and efficiency of tendering process in Public–Private Partnerships by comparative analysis of Australia and China. The choice of countries is explained by their principal difference in economic conditions: Australia is an example of a free economy and China is centrally planned one. The research results prove that there is discrepancy in meaningful critical factors for these two economical poles.

The issues as a level of transparency in tendering processes, governance structures, quality of project brief, robustness of business case development, public sector capacity and some others are critical to the effective tendering (Liu, Wang, and Wilkinson 2016; Wibowo and Alfen 2015).

Governments should set up robust business case development procedures and clear methodologies. The transparent and consistent approach is indispensable when conducting investment plan and demand analysis. The whole perspective approach is preferable to fragmented decision making in government strategy and feedback. Unification of documents along with guidelines and determined policies gives clarity to the investors. For instance, the common legal framework is important, in particular, for Indonesia.

*Improving Risk Sharing and Investment Appraisal* are crucial to the PPP Procurement stage according to Almarri and Blackwell (2014). In the PPP stage description above Procurement stage was identified as Tendering. However, Almarri and Blackwell (2014) presume that Procurement stage covers both *Tendering* and *Project Realization* steps. Their survey roots in peer-reviewed journals collecting PPP cases in constructing industry. Case study based research underlines necessity of considering the complexity of the projects and, firstly, the importance of contract renegotiations. The main postulates of the contract renegotiation theory are flexibility in balancing risks and rewards and avoiding renegotiation clause through flexibility in contract redesign.

A flexible contract can be designed by means of making hybrid structure that changes contract terms providing vulnerable unstable environment (Jinbo, Honglian, and Wanli 2016). For example, put and call options discussed above are also mentioned in this survey as reliable financial instruments to cope with renegotiation clause: these tools solve the problem of new unexpected project changes including extra costs. Parties can terminate contracts at the agreed intervals. Usually government compensation some to the investors is bigger than they paid for put option.

The second important condition of successful procurement of PPP project according to Almarri and Blackwell (2014) is Risk Calculation. The authors propose the usage of the Monte Carlo experiments method representing risk simulation method in real estate assessment. This technique is not as widespread as the Net Present Value approach in assessment of investment perspectives but has significant advantage. Net Present Value and following Sensitivity tests are static and characterize capital inflows and outflows very linearly. On the contrary, Monte Carlo experiments allow calculation of at least three possible scenarios for risk assessment on the basis of probability distribution and make more exact forecasts. This higher quality of predictability enables investors to prevent potential eventualities able to affect the project negatively.

Monte Carlo Simulation is mostly implicated in the areas requiring time and cost management, where quantification of risks is very sensitive to the project success (Almarri and Blackwell 2014).

The completing step in PPP project realization process, *Project Operation*, means exploitation period and it is under the pressure of natural conditions, institutions, modes of organization, market conditions, technology etc. (Zhang et al. 2015).

Concerning the fact that PPP Critical Success Factors vary on different project stages, it is necessary to make PPP success matrix visualizing PPP project stages and their specific success factors.

*Table 2 – PPP project stages and their Critical Success Factors*

	Feasibility. Project development.		Project realization. Managing contract: developing and commissioning. Partnership.	Project operation
	Project design. Initiation and planning	Bidding. Tendering. Procurement.		
Contractual Rules	-	+	+	+
Transparent Competition	-	+	+	+
Governance Structure	+	+	+	-
Public Sector Capacity	-	+	+	-
Quality of Project Brief	+	+	+	-
Robustness of Business Case Development (clear methodology)	+	+	+	-
Unification of Documents, Guidelines and Policies	+	+	+	-
Risk Calculation and Sharing	-	+	+	-
Flexible Contracts (possibility of renegotiation)	-	+	+	+
Cost Effectiveness and Financial Attractiveness	+	+	-	-
Natural Conditions	-	-	+	+
Modes of organization	-	-	+	+
Market Conditions, Stability of	-	+	+	+

Economic Environment in the country				
Technologies	-	-	+	+
Public Acceptance of the Project	-	-	+	+

Source: made by author.

In conclusion, after an elaborate analysis of the universal and specific PPP Critical Success Factors, the most common factors in the literature are identified. It should be noted that such factors as Financial Availability, Transparent Tendering, Strong Public Support can be traced in the literature throughout the period observed (from 1994 to 2017). In modern studies, the new trends root in Knowledge Management and Relationship Management. Increasing attention is paid to the quality of the relationship between partners and the attitude of the population towards the quality of the services provided.

The first paragraph addressing the issues of general conditions essential to the whole PPP project duration provides with different approaches to the universal PPP Critical Success Factors and discussing the problem of successful PPP implementation from different angles.

The second paragraph incorporating PPP project's Critical Success Factors respectively to its stages explains consequent PPP project steps in connection with their specific success factors crucial to understanding the complexity of PPP process and conditions supporting the process of project implementation. However, this approach does not open up the whole perspective of concepts and opportunities revealing the reserves of increasing PPP implementation success and making the project attractive for investments.

That is why universal and specific PPP CSFs have been summarized combining observed concepts into the following headings presented in the Table 3 below.

*Table 3 - Summary of most widespread in the literature PPP Critical Success Factors*

PPP CSFs heading	PPP CSFs discussed in the literature
Financial Availability	Project economic viability, available financial market, Cost effectiveness and financial attractiveness
Transparency of Selection Process	Transparency of procurement system, transparency of tendering, Transparent Selection Process, competitive and transparent procurement process
Project Feasibility	Quality of project brief, Unification of documents, guidelines and determined policies, clear project brief and client requirements, appropriate project identification, flexible contract
Government Support	Good governance, strong Government Support, laws, regulation,

	decrees, bureaucracy, government incentives for preventing opportunism
Social Support	Public acceptance of the project, stable and transparent social situation, stakeholder's credit, Voice and Social Accountability, Social Justice

Source: made by author.

The Table 3 reflects the summary of Chapter 1 results of outlining conceptual insights into PPP Critical Success Factors.

## **2. PPP SUCCESS EVALUATION METHODOLOGY**

### **2.1 Classification of PPP success evaluation methods**

Chapter 2 includes approaches to PPP success evaluation methods. In the first paragraph, the most common types of methods are presented, and then a classification of these methods based on the material studied is proposed. Such a classification will be a tool for defining Master Thesis's research methodology focus and specifics.

It is worthwhile of clarifying what the PPP success is before giving explanation of methods allowing its evaluation. As it is discussed in the Chapter 1, success measure in PPP is achieving of desirable outcome from participation in PPP project. The desirable outcome can vary depending on purposes of participation.

Concerning assumed PPP success definition, PPP success evaluation methods refer to PPP effectiveness assessment methods as they measure degree of achieving project outcomes.

There is a quite similar logic of PPP success measurement for both public and private partners: PPP project's desirable outcome could be financial and other bonuses from participation in PPP. For these purposes (calculation of financial attractiveness), the public partner, for example, defines IRR, computes NPV and pay-back period as well as the private partner does. Both partners can also compare inputs and outputs from participation (Kurniawan, Mudjanarko, and Ogunlana 2015). Nurdiana, Wibowo, and Hatmoko (2015) propose Analytical Hierarchy method and Sensitivity Analysis for evaluation of PPP success. There are also universal techniques that are used mainly for a rough and rapid evaluation project evaluation for both the public and private partners such as Costs/Benefits Analysis (Tao and W. 2015; Trynov 2016), analysis of Costs and Performance, in other words, Cost-Effectiveness analysis, and Cost-Utility analysis (Tao and W. 2015).

In international practice, Value for Money techniques is used to assess PPP project. The method involves the development of quality standards for good. Further, all the variants of the project implementation are evaluated from the point of view of the proposed indicators and are reduced to an integral quality index, and then correlated with the cost of the project implementation (Trynov 2016).

However, private and public partners may focus on different priorities while making decisions by results of PPP project evaluation. Despite the common specifics of PPP success assessment tool, the final decision (by assessment results) of public partner can differ from those of the private partner. Greve and Hodge (2015, 10) discuss the problem of “*enduring logic of PPP*” widely. This phenomenon presumes PPP as a good policy if both public and private partners meet their interests at PPP mechanism implementation. The study discusses widely the

problem of pursue of different interests by business and public authorities collaborating as partners in PPPs. The authors emphasize some circumstances which turn the public partner to the different PPP focus. “Problem stream” comprises the public partner’s participation motive often measured in several ways. “Policy (solutions) stream” means selection process of economically viable projects from the projects’ pull initiated by business. The ideas change and replace each other time to time and the public partner is ready to support those trends which seem to survive in long-term competition. “Political stream” is based on macroeconomic conditions, public opinion and some “organized political forces” (Greve and Hodge 2015, 8). As one more aspect, business sometimes is interested in policy-making as well and the problem of interests’ lobbying can occur (Asha 2005).

The public partner being a participant in the economic activity is interested in getting *Social Effect* of the overall results of the PPP project. Considering this potential outcome as a PPP project success measure, PPP project success can be evaluated through the project *Public Effectiveness*, which includes all aspects of the impact of the project on society. There are some *methods concentrating on Public Effectiveness* assessment:

- Social Effectiveness assessment methods;
- Environmental Effectiveness assessment methods;
- Infrastructure Effectiveness assessment methods;
- Effectiveness of Innovation assessment methods;
- Budgetary Effectiveness assessment methods both in the direction of increasing revenues to the budget and reducing budget expenditures (Varnavskii 2004).

Some of the directions that make up the public effectiveness of the project are difficult to express in quantitative terms, and to be evaluated by economic and mathematical methods, nevertheless, it is impossible not to take them into account when analyzing the effectiveness of PPPs.

Among the methods for assessing the directions of Public Effectiveness of PPPs, *Social Methods* are for the evaluation of PPP success reflecting the satisfaction of the society (or some of its target group) with the results of the project, its relevance to the needs and goals of society, its core values. Such areas can be: increasing the level of employment of the population, raising the educational or spiritual level in society, raising the quality level of any social services, protecting the population from various threats. Evaluation of these areas can be done through a *Comparative Analysis* of the level of population satisfaction, before and after the implementation of the project. In practice, at the stage of preliminary analysis of the effectiveness of the project, such an assessment can be carried out through *sociological surveys and surveys*, taking into account the expectations and interests of members of society (Varnavskii 2004).



Considering the Environmental Effectiveness of PPPs, because of the diversity of the possible impact of enterprises on the environmental situation, it is difficult to single out a uniform methodology for calculating environmental effectiveness. Depending on the scope and specialization of PPPs, there are quite a number of criteria for assessing environmental efficiency (for example, the level of emissions per unit of output, absolute figures, total emissions, or reclaimed land areas, etc., indexed (relative)). Data presents descriptive data or information reduced to common units of measure, which allows comparing them with the selected standard or base value. Another kind of applicable data is weighted data that could be modified taking into account its significance coefficient. In most cases, both for the preliminary evaluation of the project's effectiveness and for ongoing monitoring, it is most convenient to assess the level of environmental payments of the enterprise, before and after the project, or any stage (Fattakhova and Khakimova 2015).

Switching to the evaluation methods of Infrastructure Effectiveness of PPP, it is worthwhile to consider infrastructure projects' specific. They are characterized by considerable capital intensity and a long payback period of capital investments. As a rule, these are complex and large-scale projects. Another important characteristic of infrastructure project is high irreversible costs. This means that a significant part of the investment must be invested in the project at the very beginning, long before it starts making a profit (Maiello et al. 2011).

To assess the effectiveness of the infrastructure project, it is firstly necessary to assess the security of the selected region with infrastructure facilities, the region's need for these facilities, for example, by comparing the availability of similar facilities in more developed regions having similar needs to the region chosen.

When assessing the PPP effectiveness of innovations, *direct and accompanying effects from innovation* should be taken into account. Direct effects stipulate the achievement of the required technical characteristics, cost reduction, reduction in the timing of the implementation of projects, the development of new areas of activity. As for the accompanying effects, it is important to create innovation base, increase the professional and intellectual level of the staff, create a positive image of an innovative enterprise, which in modern conditions is a notable competitive advantage.

Thus, the Public Effectiveness of PPP at the stage of preliminary assessment should be analyzed from the perspective of the impact on society, with the involvement of expert opinions, sociological studies, comparative analysis with similar implemented projects, developed by the international and domestic practice.

Moving to *Financial Interest*, decisions made by public and private partners on the base of the same assessment of financial result can be different. The public partner may be interested

in the implementation of the project with zero NPV due to social significance and high public effectiveness of the project. The private partner is less inclined to be interested in the project if it promises a profit sufficient only to recoup the invested funds.

Moreover, financial capital structure matters for the private partner in decision making about PPP project realization.

Yescombe (2007) divides the *Project IRR* and the *Equity IRR*. The first one is calculated for the cash flow before debt service or equity returns. This indicator is accounted for purpose of evaluation of the project economic viability without taking into consideration its financial structure.

However, the more important indicator is the Equity IRR showing the equity cash flow (distributions) in comparison with the original equity investment. This is a widely applied core rate for making investment decisions to figure out a profitable investment projects requirements.

According to the Russian PPP normative regulation, Public Effectiveness assessment is interpreted as evaluation of the *Social-Economic Impact*.

*Financial Effectiveness* for the Russian public partner is evaluated on the base of the *Financial Attractiveness* and the *Comparative Advantage* calculation. This assessment methods is regulated by the same act as those for Socio-Economic Impact measurement, in particular, by the methodology 11.30.2015 N 894 “On Approval of the Methodology for Evaluating the Efficiency of the Public-Private Partnership Project, the Municipal-Private Partnership Project and Determining their Comparative Advantage”.

The financial performance is considered to be sufficient for the project initiation if the Net Present Value indicator is positive or equal to zero providing that weight average cost of capital is equal or 2,5% more than Federal loan bonds rate.

Socio-Economic Impact of the project is computed taking into account the goals and objectives defined in Federal target programs and relevant documents of strategic planning.

If the evaluation of the project found to be effective for each of these criteria, the next step is *Comparative Advantage* calculation.

PPP project has the Comparative Advantage if, firstly, the net discounted costs of the budgets of the Russian Federation budgetary system providing PPP project implementation are less than the net present costs at realization of the Public or Municipal contract<sup>3</sup>. Secondly, the amount of liabilities taken by the public partner in case of appearing of the PPP project's risk

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<sup>3</sup> Because of this term, PPP and MPP projects' realization in Russia is hard to launch. Usually, costs on PPP and MPP exceed expenditures on Public and Municipal Contracts. However, the Federal Law on Concession № 115 does not include this condition and Concession Projects are implemented widely in the Russian regions. Moreover, PPP projects could be more expensive because of explicating risks which private investors can account in the price of their services (Makovšek 2013).

events should be less than those in case of Public or Municipal contract implementation. However, the last requirement is less likely to satisfy with because usually costs of public procurement are smaller than those of PPP project realization.

A positive conclusion of the authorized body does not guarantee the project launch. The final decision is in jurisdiction of the supreme executive body of the respective level. The same time, a negative conclusion of the authorized body is not a prohibition to finalize the draft and make an additional attempt to get approve.

In order to be regarded financially and economically successful the project should comply with all three conditions described above. If the project answers all requirements this is directed to the supreme executive body for final decision.

If the final decision on project realization is positive, public partner in a period not exceeding 180 days from the date of decision making provides the organization and conduct of the competition among potential investors for the right to make a deal.

To sum up, the methods described above are devoted to enabling tolls for measurement of the success of the separate projects. However, the Master Thesis's scope is the regional and it is necessary to figure out whether there are methods of PPP success estimation for the separate regions.

There are assessment methods from the aspect of the *level of PPP development in certain areas*. *The National Rating of the Level of PPP Development in the Regions of Russia* presents the results of the application of PPP mechanisms for the development of the Russian infrastructure in a generalized form, provides key statistical indicators of the activities of the subjects of the Russian Federation in the development of the PPP sphere, and identifies the main trends' characteristic for the market of Public-Private Partnership projects in the regions. Thus, this methodology appraises the regional executive bodies' efforts on developing PPP mechanisms. In turn, it enables assessment of the advantages and disadvantages of PPP development mechanisms in the regions and creates analysis base for the PPP development strategy improvement, concentrating on those areas where it is necessary to do (Association "PPP Development Center" 2016).

*The National Rating of the Investment Climate in Russian regions* is very indirect tools to evaluate the perspectives of executive bodies' efforts on improvement investment climate (The Agency of Strategic Initiatives 2014a). The rating reveals investment attractiveness of the regions on the base of key investment determinants, including PPP Critical Success Factors (The Agency of Strategic Initiatives 2014b).

The Regional Rating Evaluation techniques described above reflect the *Territorial Focus* to decision making about participation in PPP. This approach presumes that participators choose firstly location and then they will have a choice of a potential project in chosen region.

However, when the problem is to choose not the PPP region but the project to join in, there are many techniques as well. These evaluation methods are concentrated on the project characteristics and cover regional specifics briefly as an additional component of assessment of a potential project versus existing alternative projects.

To sum up, there are two main directions of PPP evaluation approaches. According to the first one, PPP evaluation schemes vary relatively to the evaluation level (choosing a region for PPP launch or selection on the project level). The second one categorizes assessment techniques respectively to the target focus of assessment which varies according to the partner's assessment priorities.

Table 4 synthesizes the results of studying PPP success evaluation approaches.

*Table 4 - PPP success evaluation approaches*

Classification criteria	Classification	Success measure	Methods
Focus of PPP effectiveness evaluation	Focus of PPP success evaluation is PPP Public Effectiveness	Social Effectiveness	Sociological surveys, Comparative Analysis of the level of population satisfaction before and after the project implementation
		Ecological Effectiveness	Indexation of the accumulated data, Normative method, Coefficient method.
		Infrastructure Effectiveness	Comparative Analysis of the availability of analogous infrastructure objects in more developed regions having similar needs to the region chosen
		Effectiveness of Innovations	Accounting for direct and indirect effects from the implementation of innovations
		Budget Effectiveness	Calculating the increase in revenues to the budget and reducing budget expenditures
	Focus of PPP success evaluation is Commercial	Financial Attractiveness	Costs/Benefits Analysis, Financial Analysis (IRR, NPV, payback period, break-even point, etc.), Comparative Advantage measurement, Value for

	Interest		Money approach, Analytical Hierarchy System, Sensitivity Analysis, Analysis of inputs/outputs worksheets.
Levels of evaluation	Regional level of PPP success evaluation	Regional PPP efficiency rating	Expert interviews, Questionnaires, Mathematical and Statistical methods: Econometric Modeling, Factor Analysis (Oyedele 2013).
		Regional investment attractiveness rating	
	Project level of PPP success evaluation	Vary depending on purpose of evaluation	All methods used by public and private partners (described under the first criteria)

Source: made by author.

The discussed methods could also be grouped by *ex-post* and *ex-ante* analysis. Ex-post analysis relies to the regional methods allowing assessing of government efforts on improvement conditions for PPP. Meanwhile, ex-ante analysis is used on the project level when the question is formulated in the following way: whether it is worthwhile of implementing a particular project.

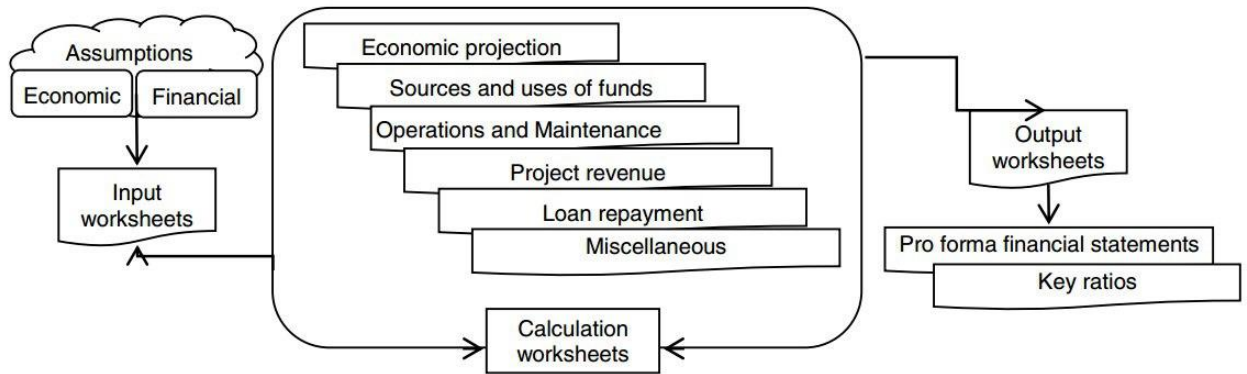
With regard to the purpose of this work which is to determine PPP Critical Success Factors boosting private sector involvement in PPP projects in the Russian regions, it is necessary to elaborate on methods that study success of PPPs at the *regional level* with focus on *private partner's interests*. However, keeping in mind dilemma of partners' interests discussed by Greve and Hodge (2015), public partner's interests, at least, in part of public satisfaction of services provision should be observed. The following paragraphs discuss in details assessment methods which are flexible frameworks and could be applied both by public and private partners at the regional level.

## 2.2 PPP assessment methods at the regional level

This paragraph, firstly, summarizes general PPP assessment methods and, secondly, studies possibility of their application at the regional level.

Kurniawan, Mudjanarko, and Ogunlana (2015) suggest assessment of PPP project success on the base of the same indicators but using a little bit different structure: *Input and Output* worksheets. The Figure 3 demonstrates their assessment scheme.

Figure 3 – Input and Output worksheets' PPP success assessment method



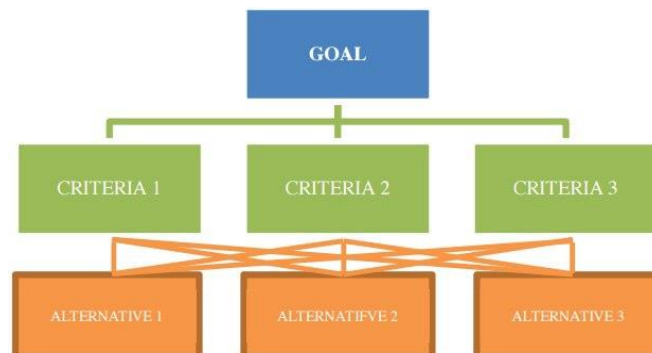
Source: Kurniawan, Mudjanarko, and Ogunlana (2015).

The *Input worksheets* implies the initial project assumptions such as exchange and interest rates, inflation, time limitations, required return on equity, etc. Some of the information is external (for example, interest rate) and could not be controlled by project performers. Using this method, it is possible to change numbers in the input assumptions and the project result will be re-counted automatically due to having same formulas.

*Output worksheets* will help evaluate financial attractiveness of the project. They include financial documentation (balance sheets, cash flow distribution), etc. and critical performance indicators (net profit, NPV, returns on capital, calculated IRR). Those calculations are based on the principals of discounting cash flows, however, this method could give different results depending on calculation techniques (Oliveira and Marques 2014).

Analytical Hierarchy Process is one of decision-making (Decision Support Systems) techniques proposed by Thomas L. Saaty. Decision Support System can develop a multifactor or multi-criteria task in the hierarchy. A hierarchy means a complex problem reflecting in a multi-level structure. Following this logic, a complex problem can be split into groups, and then organized as a hierarchy so that the problem visualization is more framed and systematic. Figure 4 demonstrates decision support system scheme.

Figure 4 – Decision Support System in PPP success evaluation



Source: Nurdiana, Wibowo, and Hatmoko (2015).

The authors propose using Sensitivity Analysis on the base of the Hierarchy method. Sensitivity analysis makes a choice of particular criteria reasonable. Modification of the criteria definitely leads to the priority change which is calculated by Hierarchy method. That is how Hierarchy method and Sensitivity Analysis relate. The private partner can analyze priorities

The following Figure 5 is an example of how determining of the priorities is reached by multiplying the weight of each criteria and the weight of each alternative decision.

*Figure 5 - Global Priority Matrix and Analytical Hierarchy Process in PPP success appraisal*

Criteria	K <sub>1</sub>	K <sub>2</sub>	K <sub>3</sub>	K <sub>4</sub>	Global
Weight	x <sub>1</sub>	x <sub>2</sub>	x <sub>3</sub>	x <sub>4</sub>	Priority
<b>A</b>	a <sub>1</sub>	a <sub>2</sub>	a <sub>3</sub>	a <sub>4</sub>	X
<b>B</b>	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	b <sub>4</sub>	Y
<b>C</b>	c <sub>1</sub>	c <sub>2</sub>	c <sub>3</sub>	c <sub>4</sub>	Z

Source: Nurdiana, Wibowo, and Hatmoko (2015).

- A, B, C - Alternative;
- X – Global Priority of Alternative A;
- K<sub>1</sub>, K<sub>2</sub>, K<sub>3</sub>, K<sub>4</sub> – Criteria;
- Y – Global Priority of Alternative B;
- x<sub>1</sub>, x<sub>2</sub>, x<sub>3</sub>, x<sub>4</sub> – the Criteria Weight
- Z – Global Priority of Alternative C.

“The changes of Weight Criterion (x<sub>1</sub>), will make the changes of priority. These changes of priority can be seen in the changing of global priority values (X, Y, and Z). The Weight of the Criteria can be changed to be smaller or larger than the previous. The same step is also performed on the weights x<sub>2</sub>, x<sub>3</sub>, and x<sub>4</sub>. Then it will be known the sensitivity changes from each criteria” (Nurdiana, Wibowo, and Hatmoko 2015, 14).

Yuwen and Zhang (2013) propose simulation of investment returns on the toll project. When evaluating the project, researchers collect information and make some computations to forecast the variety of outcomes for the inputs made. There are four types of risks based on the project, costs, toll specifics and financing. Every risk characteristics incorporates evaluation of some critical variables. Monte Carlo method is a risk simulation tool allowing suggestion of the odds of these variables’ distributions. After risk simulation shows how the values can be distributed depending on introductory data, the following step is to optimize these values to achieve desired result. This step is named risk optimization. There are two directions of risk optimization. The first is calculating the optimal value combination to help set risk control benchmarks” (Yuwen and Zhang 2013, 5). The second is to control one variable’s values to explore “the optimal total revenue” considering pricing policy.

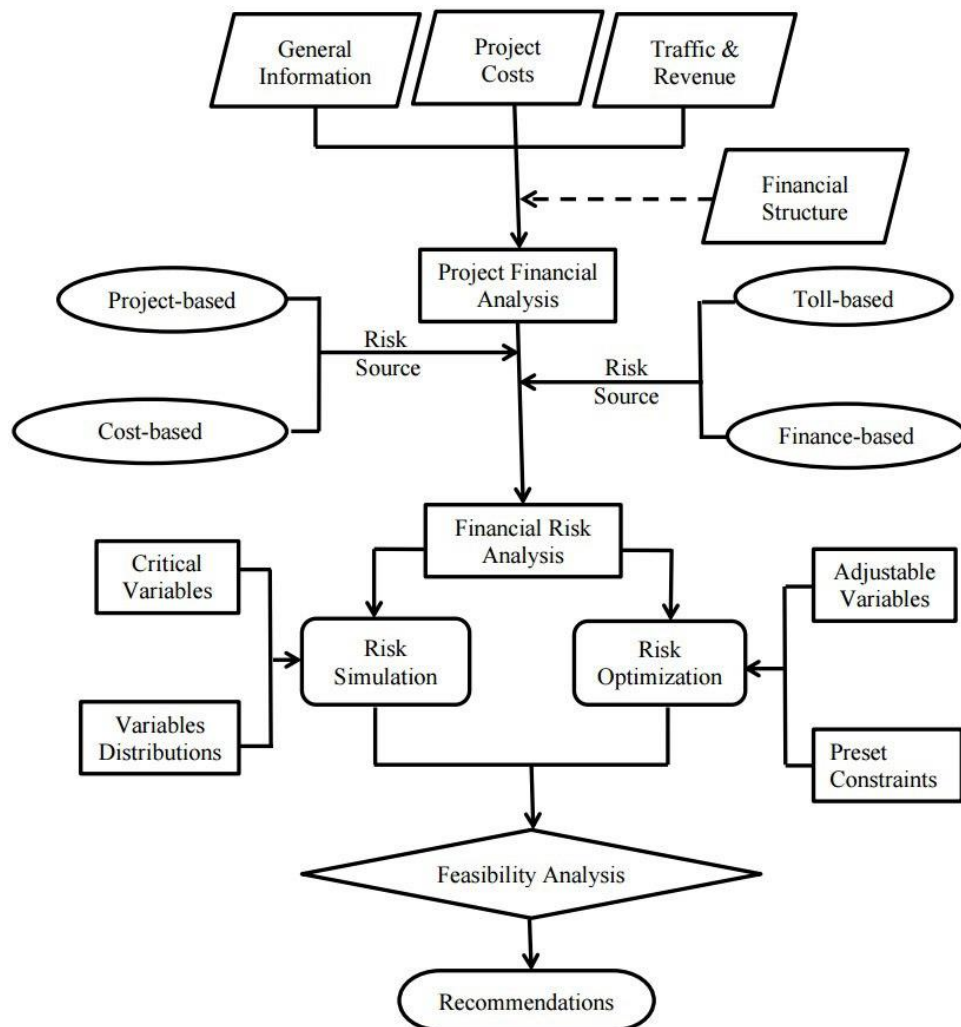
Yuwen and Zhang (2013) apply risk simulation approach to predict distributions of investment returns for toll projects. This information is critical to the quality of financial analysis and managing risks.

According to the authors, Monte Carlo experiments' method is more sophisticated tool in comparison with traditional sensitivity analysis as gives possibility to evaluate variety of randomly generated scenarios. Peng, Wei and Liu (2013) add that analytical information done by means of Monte-Carlo experiments is easily to use again changing input data. In other words, the process is quickly automatized. The Figure 6 reflects the risk simulation methodology steps (Yuwen and Zhang 2013).

On the first step of analysis, toll project's critical factors for financial analysis are defined. Next, financial indicators (NPV, IRR, ADSCR) are calculated on the base of the input data (values of critical variables). The following analysis is devoted to risk simulation and optimization described above.

Monte-Carlo experiments is advanced statistical tool and financial analysis of cash flows based on IRR, NPV, etc. is self-sufficient for decision making. One of famous approaches in the international and Russian practice is to measure financial attractiveness of the PPP project is to assess generated cash flows (World Bank 2012; OECD 2016, Makarov 2014).

*Figure 6 – Risk Simulation methodology. Monte-Carlo method*



Source: Yuwen and Zhang (2013).



As it follows from the more elaborate studying of the PPP effectiveness assessment methods, they could specify on any quantitatively measured target indicators. However, they make focus on the evaluation of the project economic viability and formulate the assessment goal as selection of the best project among alternatives or evaluation the existing project perspectives. The regional PPP effectiveness assessment methods will be explored further to evaluate their focus.

#### *The National Rating of the Investment Climate in Russian Regions*

The system of the Rating developed by representatives of leading business associations and experts is aimed at assessing the efforts of regional authorities to improve the investment climate in the region (the Agency of Strategic Initiatives 2014b; Nikitin 2016).

The Rating consists of 54 indicators that are grouped into 19 factors. In turn, the factors are grouped into four areas: Regulatory Environment, Institutions for Business, Infrastructure and Resources, Small Business Support (the Agency of Strategic Initiatives 2014).

The indicator *Regulatory Environment* characterizes the quality of the provision of public services for business and includes the time for the passage of standard administrative procedures, their number and entrepreneurs' satisfaction. Typical procedures include:

- registration of legal entities;
- issuing permits for construction;
- issuing licenses;
- registration of property rights for real estate;
- connection to power networks.

The *Institutions for Business* indicator serves to assess the availability and effectiveness of institutions for protecting and improving the investment environment. It includes indicators such as:

- availability and quality of regional legislation on mechanisms for protecting investors' rights and supporting investment activities;
- effectiveness of the institution of assessment of regulatory impact in the subject of the Russian Federation.

The indicator *Infrastructure and Resources* is characterized by:

- level of development of physical, investment and social-labor infrastructure;
- availability of resources for business and investment activities.

The indicator *Support for Small Business* is measured by:

- the number of small businesses per 1,000 people in the region;

- effectiveness of various types of support, such as the evaluation of procedures for obtaining consultative and educational services provided by organizations of small business support infrastructure in the region;

- assessment of the real estate necessary for business;

- an assessment of the availability of credit resources, etc. (Nikitin 2016).

#### *Data collection and calculation of indicators' values*

The Rating uses three types of indicators: questioning, expert and statistical. Data was transferred from natural units to a single scale from 0 to 100 using proportional linear scaling (0 corresponds to the worst possible result, and 100 corresponds to the best possible result).

The values of factors and direction indices were calculated as a weighted average for the standardized values of the indicators. Weights were determined by experts.

The breakdown into groups was carried out using the method of the largest gaps, the boundaries of the groups were determined in the places of the greatest difference in the values of the indicator between the neighboring regions, the results of pilot testing of the national rating of the investment climate in the subjects of the Russian Federation (The Agency of Strategic Initiatives 2014).

#### *The Rating of the Russian Regions on the Public-Private Partnership Development Level*

The methodology used to assess the level of Public-Private Partnership development corresponds to the methodology approved by the Order of the Ministry of Economic Development of the Russian Federation of May 15, 2014 No. 266. In the framework of the study, the authors attracted a wide range of experts and infrastructure market participants whose estimates were used in the calculation Indicators related to the experience of implementing Public-Private Partnership projects and the quality of the institutional environment for the implementation of such projects.

The calculation of the complex indicator the Level of Development of the Sphere of Public-Private Partnership in the subject of the Russian Federation is made by the following formula:

$$R_j = \alpha \times L_j + \beta \times E_j + \gamma \times I_j,$$

j - serial number of the subject of the Russian Federation;

$\alpha$ ,  $\beta$ ,  $\gamma$  - weights that determine the significance of the composite factors, with  $\alpha = 0.4$ ,  $\beta = 0.3$ ,  $\gamma = 0.3$ ;

$L_j$  - the factor "Development of the institutional environment in the sphere of Public-Private Partnership";

$E_j$  - the factor "Experience in implementing Public-Private Partnership projects";

$I_j$  - the factor “Investment attractiveness for the subject of the Russian Federation”.

*Computation of the composite factors' weights*

The factor “Development of the institutional environment” in the sphere of Public-Private Partnership has the greatest weight, because at the moment Public-Private Partnership in the Russian Federation is at the stage of formation and the development of the institutional environment is the most important component for attracting investments in the development of public infrastructure using PPP mechanisms according to the authors. The rest two factors have the equal weights calculated as  $(1 - 0.4) / 2 = 0.3$

Such weights' prioritizing confirms this paper approach to the classification of PPP effectiveness assessment methods in part of grouping methods by their focus – when making some assessment frameworks researches rank some circumstances by their importance.

*Intermediate indicators constituting the composite factors*

*Development of the Institutional Environment* consists of the following indicators:

- regional PPP Law;
- regional normative legal acts in the sphere of PPP;
- municipal legal acts in the field of MPP;
- NRAs regulating the application of various PPP models;
- investment development program (investment strategies);
- PPP development plan and (or) PPP implementation program in the subject of the Russian Federation;
- the investment fund of the subject of the Russian Federation.

*Experience in Implementing Public-Private Partnership projects* accumulates:

- the current status of the project (implementation phase);
- the volume of the financial resources invested by a private investor;
- the period of the project implementation taking into account all stages;
- sectoral differentiation of projects in the subject;
- the expert coefficient.

*Investment Attractiveness for the Subject of the Russian Federation* is based on the rating of the investment attractiveness of the regions of Russia by the rating agency Expert RA. The factor has a value, expressed in points, which was exposed on the basis of the investment attractiveness rating of each subject.

Summarizing PPP success evaluation methods it is necessary to make a conclusion about possibility to evaluate PPP success for the private partner as well as for the public partner at the regional level in terms of the Master thesis objectives.

Those methods that are oriented to both public and private partners are presented at the project level (the goal of the analysis is to choose from existing alternatives), and not at the regional level. In particular, there is a lack of business-focused methods at the regional level.

No doubt, there are PPP assessment instruments concerning regional approach. The most sophisticated Russian methods in this area are two of the Public-Private Partnership center and the Agency of Strategic Initiatives described in this Chapter. Although, these methods are mainly designed for public management's purposes and target executive bodies as a main user. Of course, they include evaluation of the indicators which the private partner is interested in but there many other indicators as government regulatory impact assessment and such indicators may significantly change values of the whole composite factor. As one more example in favor of government-oriented approach of these methods, assessment of the business environment is carried out from the perspective of qualitative implantation in the regions of the Regional Investment Standard (The Agency of Strategic Initiatives 2014a). Basically, these regional techniques are dedicated to effectiveness of the executive bodies' activities on improving PPP and investment climate development in the regions.

Taking into account these facts, the research gap is in providing a methodology allowing evaluation business perception of how PPP develops in the Russian regions. There are sufficient methods to evaluate government efforts on PPP development in the regions but not to know how the business evaluates their efforts. The drawback of existing regional methods is in the lack of "customization".

Client-oriented methodology should aim assessment of the PPP Critical Success Factors from the position of investors and detect which factors matter for the private partner in decision-making. Some of these factors were defined in the Chapter 1 in review of the researches devoted to the identification of such factors. The following Chapter presents an analysis of connection between the identified Critical Success Factors and the private partner readiness to participate in the provision of public services to observe determined Critical Success Factors' relevance to the Russian regional specific. The research devoted to evaluation of PPP CSFs in regions from the business perception can spread more light to the government on how the business perceives the PPP supporting environment. This research does not claim to be a self-dependent methodology but could be a helpful addition to the existing methods.

### **2.3 Research methodology**

This paragraph is devoted to the paper research framework. There is explanation how the datum has been collected, research method and its limitations.

The data-base for this research has been taken from the Business Environment and Enterprise Performance Survey (BEEPS) held by European Bank of Reconstruction and Development in partnership with the World Bank (European Bank for Reconstruction and Development 2014a). This survey is aimed at studying the quality of the business environment in countries and regions.

For the purpose of writing the Master's thesis, survey data were obtained for 37 regions of the Russian Federation for 2012, as this period is characterized by a rise in PPP activity in the regions of the Russian Federation.

Companies from the following industries were eliminated from the initial BEEPS sample as least relevant to PPP: food, tobacco products, textiles, garments, tanning & leather, wood, paper & paper products, publishing-printing and recorded media, coke & refined petroleum, furniture, wholesale, retail, hotel and restaurants.

The Figure 1 and Figure 2 in Appendix 1 and Appendix 2 respectively show the structure of the sample presented by sector and region. Red color shows the share of respondents in each industry (region) that participate in the provision of public services; green represents those who do not participate in the provision of public services and in there is the percentage of respondents who did not indicate their position relative to the provision of public services was allocated in blue.

Most respondents, up to about 70% in each industry, participate in the provision of public services. The Appendix 3 presents in more detail the structure of answers about involvement in the provision of public services in the most relevant industries (transport, construction, etc).

Turning to the Appendix 2 showing the regional structure of the respondents, in most of the involved regions, the majority of respondents are involved in the provision of public services.

The regions were divided into 4 groups according to the "PPP start" rating (Association "PPP Development Center" 2013), reflecting the level of development of PPPs in the regions at the time of the survey by the World Bank. Regions constituting the sample were ranked in ascending order according to the rank assigned to the region by "PPP start". The border between the groups passed after every ninth region, because, basically, following the rating, the regions went in order, and there were no big gaps between the positions.

*Cluster 1*

Saint Petersburg	1
Republic of Tatarstan	2
Voronezh Region	3
Yaroslavl Region	4
Belgorod Region	6
Nizhni Novgorod Region	7
Kaluga Region	9
Novosibirsk Region	10
Rostov Region	11

*Cluster 2*

Sverdlovsk Region	12
Moscow City	13
Krasnoyarsk Territory	14
Krasnodar Territory	15
Kirov Region	16
Ulyanovsk Region	17
Leningrad Region	18
Lipetsk Region	20
Moscow Region	21

*Cluster 3*

Omsk Region	23
Samara Region	25
Irkutsk Region	28
Volgograd Region	30
Tomsk Region	31
Stavropol Territory	35
Kemerovo Region	38
Kursk Region	42
Murmansk Region	43

*Cluster 4*

Tver Region	45
Chelyabinsk Region	46
Republic of Sakha (Yakutia)	47
Smolensk Region	49
Republic of Bashkortostan	51
Perm Territory	56
Kaliningrad Region	62
Khabarovsk Territory	64
Republic of Mordovia	72
Primorsky Territory	81

Thus, the first three clusters include 9 regions, and 4, which represent the regions with the least favorable conditions for PPP combines 10 regions.

Figure 7 shows the number and involvement of respondents in the provision of public services in each cluster.

*Figure 7 – Respondents' involvement in provision of public services by clusters*

. tab cluster veb3

cluster	Private business involvement in provision of public services			Total
	-9	1	2	
1	21	193	38	252
2	8	231	22	261
3	28	177	48	253
4	21	196	43	260
Total	78	797	151	1,026

The number -9 means that there was no answer to the question about participation in the provision of public services by the respondent company. Number 1 coded the answers of respondents who responded positively to this question and number 2 characterizes negative answers.

The first cluster consists of 252 respondents, of which 193 are involved in providing public services. The second cluster consists of 261 respondents, of which 231 are involved in the provision of public services. The total number of respondents in 3 cluster is 253 people, of which 177 people have experience in providing public services. The last, the fourth cluster, has 260 people, of which 196 people participate or participated in the provision of public services.

The meaning of the status of participation in the provision of public services should be determined. A positive answer implies that the respondent company participated or is currently involved in the provision of public services, in other words, has such kind of experience. For brevity, the work will further mention that the respondents are involved.

In order to answer the main research question, in particular, whether there is interrelation between investors' attitude to the level of PPP Critical Success Factors' development in the region and their involvement in the provision of public services there. The initial research hypothesis is that investors who participate in the provision of public services evaluate PPP Critical Success Factors' development more positively than not participating investors estimate.

Table of contingency is a convenient format of presenting descriptive statistics and Chi-square test is applicable for detection whether there is statistically significant interrelation between respondents' Involvement Status and PPP Critical Success Factors' estimation level (Williams 2017).

Chi-square test (Pearson test) is a technique enabling identification of the existing association between two categorical variables. The null hypothesis is formulated as there is no association between observed categories or, in other words, these variables are interdependent toward to each other. If the p-value is higher than 0,05 with confidence level equal to 0,95, the null hypotheses is not rejected.

“Chi-Square Test is based on  $\chi^2$  distribution with  $(r - 1)$  and  $(c - 1)$  degrees of freedom and  $\chi^2 = z^2$ , when degrees of freedom=1 (2x2 table)” (Scott and Peebles 2017).

$$\chi^2 = \sum_{i=1}^{rc} \frac{(O_i - E_i)^2}{E_i}$$

“The chi-square test is based on quantifying whether deviations from these two expected numbers are serious enough to warrant rejection of the null hypothesis. In general, the chi-square test looks like this:  $E_i$  is the expected number,  $O_i$  is the observed number,  $r$  is the number of rows, and  $c$  is the number of columns. Distributed according to the chi-square distribution with  $df=(r - 1) * (c - 1)$  degrees of freedom” (Scott and Peebles 2017).

The important limitation of this test application is that presence of association does not imply causality relationship. It means that category 1 is not obligatory influence category 2 or

reversely. The test informs that category 1 and category 2 are interdependent, statistically significant toward to each other.

The second important limitation is that Chi-square test counts on “large sample theory” and could be invalid in terms of small sample size.

The alternative test that could be carried out if the second limitation happens is a Fisher’s Exact test. This test calculate “precise” likelihood of data appearing in the studied dataset providing that no association exists.

The studied categories are the following. The first one characterizes private business involvement in provision of public services. There are three options to establish respondents’ positions such as “Yes”, “No” and “No reply”. The second category describes respondents’ evaluation of PPP risks connected to the Critical Success Factors chosen for analysis (European Bank for Reconstruction and Development 2014b).

If it is necessary to evaluate Transparency of Selection Process in PPP, the respondents’ answers on the question how they evaluate PPP risk of Lobbying and Non-Transparent Selection Process. The answers are “None”, “Moderate”, “Major” and “No reply”.

Following the same logic, the Critical Success Factor “Financial Availability” is bound to the variable “PPP risk: Termination of Financing due to lack of / lower budget revenue”, factor “Social Support” is to “PPP risk: people unhappy about provision of public services by private business”, factor “Project Feasibility” is to “PPP risk: evaluation of PPP Transparency and Openness”, factor “Government Support” is to “PPP risk: Positive Changes in the Regional Legislation over last 2-3 years” (European Bank for Reconstruction and Development 2014a).

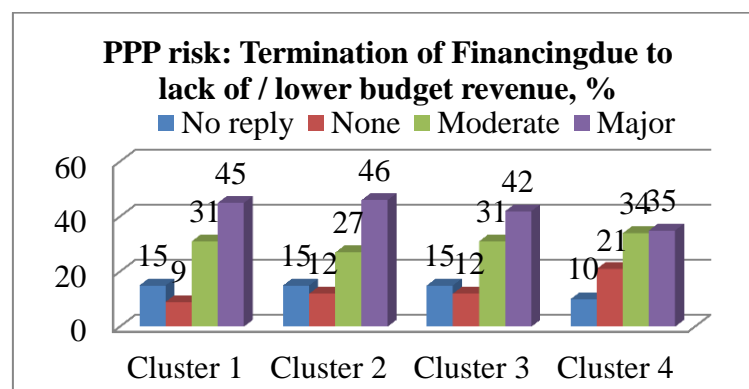


### 3. IDENTIFICATION OF FACTORS BOOSTING BUSINESS INVOLVEMENT INTO PROVISION OF PUBLIC SERVICES IN THE RUSSIAN REGIONS

#### 3.1 Dominant PPP risks in the Russian regions according to investors' opinion

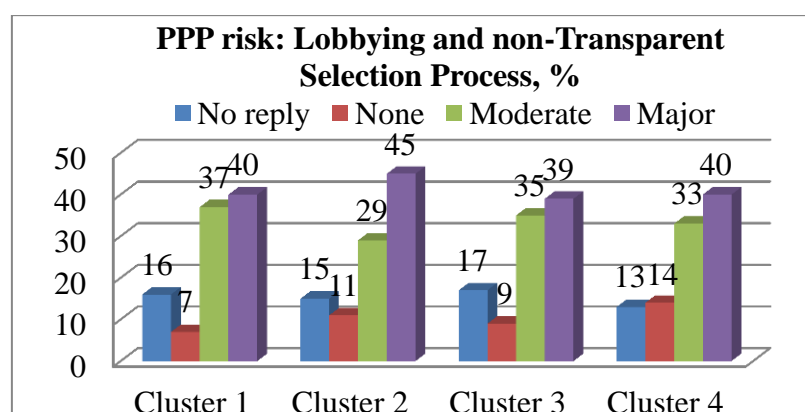
The beginning of the Chapter 3 is a kind of descriptive statistics. Respondents were asked to assess PPP Critical Success Factors through risks, as it is described in the previous paragraph of Chapter 2. The higher the level of risk of PPP in the respondents' opinion is, the lower the level of development of the relevant factor. The tables formed in the current paragraph make it possible to see how positively / negatively investors evaluate these or other risks in all clusters.

*Figure 8 – Evaluation of PPP risk: Termination of Financing due to lack of / lower budget revenue, all clusters (%)*



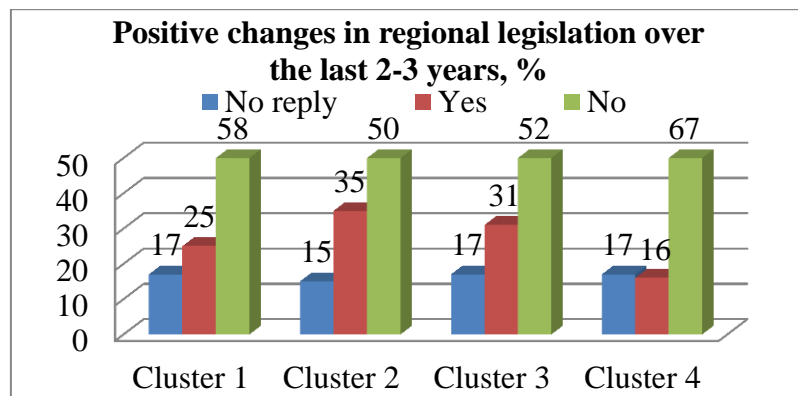
The majority of respondents in all clusters consider the risk of Termination of Financing to be major. Interesting tendency is that the worse PPP level development in the cluster, the more proportion of respondents there who state the absence of this risk. Taking into account the fact, that majority of respondents in each cluster are business representatives participating in provision of public services, it could be the following explanation of increasing “None” evaluation proportion in clusters: in clusters with lower PPP development rating investors are likely to participate in PPP if they think of risks as not very serious obstacles.

*Figure 9 – Evaluation of PPP risk: Lobbying and Non-Transparent Selection Process, all clusters (%)*



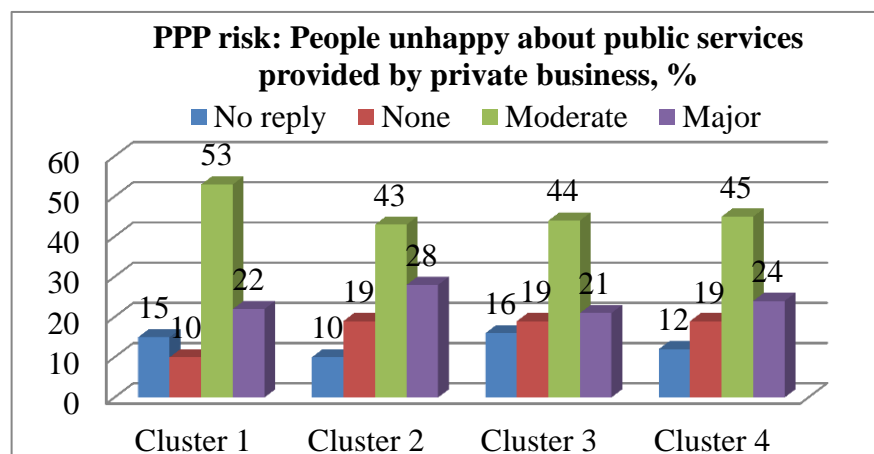
As for respondents' attitude to the risk of Lobbying and Non-Transparent Selection Process, the major risk estimation prevails in all regions but in less proportion than it is presented on the Figure 9 describing assessment of the "Termination of financing" risk. In the rest, the tendency for respondents to change their opinions on the transition from a cluster with a higher level of PPP development to clusters with a lower level, described in the study of the risk of Lobbying, persists. It can be assumed that when assessing the relationship between business involvement in the provision of public services and their risk assessment, results by financial and Lobbying risks will coincide in the same clusters.

*Figure 10 – Positive changes in regional legislation over last 2-3 years, all clusters (%)*



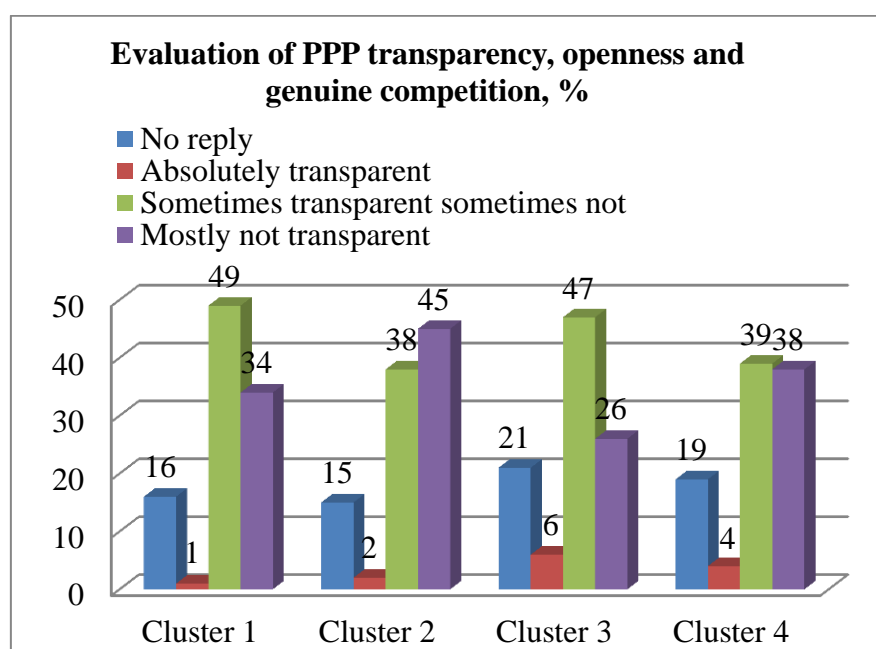
The least share of respondents (in comparison with the rest clusters) who are inclined to believe that changes in regional legislation influencing positively the development of PPPs have occurred is in cluster 4. Moreover, the highest share of respondents who tend to reject Positive Changes in Legislation is in cluster 4 as well, to compare with the answers in the other clusters. In addition, observing the distribution of answers' proportion within cluster 4, 67% of respondents believe that there is no any Positive Changes in the Regional Legislation toward to PPP development. Basically, this Figure 10 goes alongside with PPP Rating which ranks lower the regions constituting cluster 4, in comparison with how it rates conditions of PPP development in regions forming the other clusters.

*Figure 11 – PPP risk: Social Dissatisfaction of business involvement, all clusters (%)*



Studying the respondents' perception of how society appraises the quality of public services provided by business, the whole picture is more positive. The moderate risk level dominates in all clusters. The proportion of respondents who believe that there is no risk of Social Dissatisfaction at all is higher in clusters 2, 3 and 4 almost two times than it is in cluster 1 which is most PPP-developed cluster.

*Figure 12 – PPP risk: People unhappy about public services provided by private business, all clusters (%)*



There is very low frequency of answers from respondents who trust in absolute openness and transparency of PPP process of project realization in the regions of Russia. More positive respondents are in cluster 3 with regard to their answers.

To conclude, there are very few answers that risks are “None” speaking about all observed risks. This shows that the level of PPP CSFs development needs to be improved in opinion of respondents to satisfy their expectations. Social Support is evaluated more positively than Government Support.

### **3.2 Interconnection between business involvement in provision of public services and how business evaluates PPP conditions in the Russian regions**

The previous paragraph summarizes results of how respondents assess development of PPP Critical Success Factors in the Russian regions (Success factors were suggested to be evaluated through relevant PPP risks. The higher the estimated level of risk is the worse the level of development of the relevant factor).

In this part, it is essential to find out whether there is a statistical relationship between the willingness of business to participate in the provision of public services and the way business

assesses the development of critical factors for the success of PPPs in the region. The willingness to participate means the business Involvement Status of the respondent, namely, whether a respondent participates / participated in the provision of public services or does not participate / did not participate. Identification of the relationship between investors' evaluation of PPP CSFs and their Involvement Status will help to determine the conditions for the development of PPPs in regions whose improvement is important for attracting business.

The data presented on the figures is relative by rows. Thus, we can estimate what the level of risk evaluation is most widespread among those who participate and who do not participate in provision of public services. Information on how the relationship between the risk assessment and the fact of participation / non-participation is statistically detected is provided in the section "Research methodology". This analytical part presents results' interpretation. The categories "No answer", "None", "Moderate" and "Major" are presented under the numbers -9, 1, 2 and 3 respectively horizontally on the figures. The categories verifying business Involvement Status are "No answer", "Yes" and "No" are under the numbers -9, 1, 2 vertically.

*Analysis of the Critical Success Factor "Financing availability"*

*Figure 13 - PPP risk: Termination of Financing due to lack of / lower budget revenue and involvement, cluster 1 (%)*

Private business involvement in provision of public services	PPP risk: Termination of financing due to lack of / lower budget revenue				Total
	-9	1	2	3	
-9	23.81	9.52	19.05	47.62	100.00
1	13.47	10.36	31.61	44.56	100.00
2	15.79	2.63	34.21	47.37	100.00
Total	14.68	9.13	30.95	45.24	100.00

Pearson chi2(6) = 4.7016 Pr = 0.583  
Fisher's exact = 0.558

*Figure 14 - PPP risk: Termination of Financing due to lack of / lower budget revenue and involvement, cluster 2 (%)*

Private business involvement in provision of public services	PPP risk: Termination of financing due to lack of/lower budget revenue				Total
	-9	1	2	3	
-9	37.50	0.00	12.50	50.00	100.00
1	13.85	11.69	29.00	45.45	100.00
2	22.73	13.64	13.64	50.00	100.00
Total	15.33	11.49	27.20	45.98	100.00

Pearson chi2(6) = 7.2141 Pr = 0.301  
Fisher's exact = 0.312

*Figure 15 - PPP risk: Termination of Financing due to lack of / lower budget revenue and involvement, cluster 3 (%)*

Private business involvement in provision of public services	PPP risk: Termination of financing due to lack of/lower budget revenue				Total
	-9	1	2	3	
-9	53.57	3.57	10.71	32.14	100.00
1	9.60	11.86	33.33	45.20	100.00
2	14.58	14.58	35.42	35.42	100.00
Total	15.42	11.46	31.23	41.90	100.00

Pearson chi2(6) = 38.1690 Pr = 0.000  
Fisher's exact = 0.000

*Figure 16 - PPP risk: Termination of Financing due to lack of / lower budget revenue and involvement, cluster 4 (%)*

Private business involvement in provision of public services	PPP risk: Termination of financing due to lack of/lower budget revenue				Total
	-9	1	2	3	
-9	38.10	14.29	28.57	19.05	100.00
1	5.61	22.96	33.67	37.76	100.00
2	18.60	13.95	37.21	30.23	100.00
Total	10.38	20.77	33.85	35.00	100.00

Pearson chi2(6) = 27.0134 Pr = 0.000  
Fisher's exact = 0.001

In cluster 1 there is no statistical relationship between the status of respondents' involvement in the provision of public services and their perception of the risk of Termination of Financing due

to lower / lack of budget revenue. Among those who participate in the provision of public services in cluster 1, 10% believe that the risk of Termination of Financing due to lower / lack of budget revenue does not exist at all, and 45% of the respondents feel it is major. Of those who do not participate, only 3% believe that there is no such risk, and there is approximately the same share of opinions (among 47%) who do not take part in the high risk assessment compared to the participants. In general, the opinions of the participants and non-participants are evenly distributed when evaluating the financial risk as an average: 32% of the responses of participants and 35% of those of non-participants.

The analysis of the relationship between assessment of the risk of Termination of Financing and involvement in the provision of public services in cluster 2 demonstrates a similar situation to how it is going in cluster 1. Estimates of the level of this risk and the status of participation are not dependent on each other statistically. At the same time, 12% of participants believe that there is no risk of termination of financing, 29% participants consider this risk as moderate and 46% of them evaluate it as major. The proportion of not participating respondents noted the absence of this risk is similar to the participators' proportion (14% versus 12% respectively). About 30% of the participants and 14% of non-participants rate this risk as moderate. A major assessment of this risk was set by 45% of the participants and 50% of non-participants that is also not a big difference. Thus, as in cluster 1, there are no differences in the behavior of participating and non-participating respondents: the risk levels mostly are estimated in similar proportions.

When studying cluster 3, the interrelation between the assessment level of the risk of Termination of Financing and participation in the provision of public services is detected. Participating and not participating in a similar proportion estimate the absence of such financial risk: 12% of participants and 15% of non-participants believe that this risk is absent. It is interesting that almost half of the participating respondents (45%) evaluate the risk of Termination of Financing as major. The major level was assigned as well by not participating respondents in a smaller proportion (35%). Considering that in this cluster the respondents' assessment of the risks is statistically associated with their Involvement Status, it can be assumed that this factor is significant, but does not affect the decision to participate in this cluster. Participating respondents are consciously assuming the risks of financing.

Cluster 4 also confirms the existence of association between respondents' answers about participation and their perception of the risk of financing. According to the descriptive statistics, 23% of the participants (which is significantly more than in other clusters) assessed this financial risk as absent versus 14% of those who do not participate. The other estimation level in both groups range from 30% to 38%.

# Analysis of the Critical Success Factor “Transparency of selection process

**Figure 17 - PPP risk: Lobbying, Non-Transparent Selection Process and involvement, cluster 1 (%)**

Private business involvement in provision of public services	PPP risk: Lobbying, non-transparent selection process				Total
	Don't know	None	Moderate	Major	
-9	28.57	4.76	28.57	38.10	100.00
1	13.47	6.74	40.93	38.86	100.00
2	23.68	7.89	23.68	44.74	100.00
Total	16.27	6.75	37.30	39.68	100.00

Pearson chi2(6) = 7.6542 Pr = 0.265

Fisher's exact = 0.226

**Figure 18 - PPP risk: Lobbying, Non-Transparent Selection Process and involvement, cluster 2 (%)**

Private business involvement in provision of public services	PPP risk: Lobbying, non-transparent selection process				Total
	Don't know	None	Moderate	Major	
-9	37.50	0.00	12.50	50.00	100.00
1	13.42	11.26	29.87	45.45	100.00
2	18.18	9.09	22.73	50.00	100.00
Total	14.56	10.73	28.74	45.98	100.00

Pearson chi2(6) = 5.5021 Pr = 0.481

Fisher's exact = 0.576

**Figure 19 - PPP risk: Lobbying, Non-Transparent Selection Process and involvement, cluster 3 (%)**

Private business involvement in provision of public services	PPP risk: Lobbying, non-transparent selection process				Total
	Don't know	None	Moderate	Major	
-9	50.00	0.00	25.00	25.00	100.00
1	13.56	9.04	34.46	42.94	100.00
2	12.50	12.50	43.75	31.25	100.00
Total	17.39	8.70	35.18	38.74	100.00

Pearson chi2(6) = 27.2501 Pr = 0.000

Fisher's exact = 0.001

*Figure 20 - PPP risk: Lobbying, Non-Transparent Selection Process and involvement, cluster 4 (%)*

Private business involvement in provision of public services	PPP risk: Lobbying, non-transparent selection process				Total
	Don't know	None	Moderate	Major	
-9	47.62	9.52	14.29	28.57	100.00
1	7.14	13.27	35.71	43.88	100.00
2	23.26	16.28	32.56	27.91	100.00
Total	13.08	13.46	33.46	40.00	100.00

Pearson chi2(6) = 33.9566 Pr = 0.000  
Fisher's exact = 0.000

In cluster 1, the risk of dishonest tendering and Lobbying of interests is not associated with the fact whether the respondent participates in the provision of public services or does not. About 7% and 8% of the participators and non-participators respectively believe that this risk is not represented in their regions. A large proportion of participating respondents estimate this risk as moderate (41%), and a large proportion of non-participating respondents assess the risk do as major (45%).

In cluster 2, risk of Lobbying and Non-Transparent Selection Process is not associated with the participation status as well. Among participating respondents 11% evaluate the risk as none and 45% participating respondents mark this risk as major. Respondents who do not participate in provision of public services evaluate the risk of Lobbying and Non-Transparent Selection Process as none and major in proportion of 9% and 50% respectively.

When evaluating risk of Lobbying and Non-Transparent Selection Process the whole Figure is the same as for risk of projects' financing termination: there is association between studied categories for clusters 3 and 4 versus absent association between variables for clusters 1 and 2.

Speaking about cluster 3, 9% of participating respondents labeled Lobbying risk as none and 13% of not participating respondents did in the same way. The focus of risk power is switched to the major mark (43%) among participating respondents and, oppositely, to the left side toward to the moderate mark (44%) for not participating respondents.

In cluster 4, the relation between perception of Lobbying and Non-Transparent selection risk and participation status follows the tendency described in the previous cluster toward this risk. About 14% of participating respondents suppose that there is no such a risk, 36% and 44% of them consider the risk to be moderate and major respectively. As for not participating



respondents, 16% of them suggest that the risk of Lobbying and Non-Transparent Selection Process is none, 33% characterize it as moderate and 28% evaluate as major.

*Evaluation of the Critical Success Factor: Social Support*

*Figure 21 - PPP risk: Social Dissatisfaction and business involvement, cluster 1 (%)*

Private business involvement in provision of public services	PPP risk: People unhappy about public services provided by private business				Total
	Don't know	None	Moderate	Major	
-9	23.81	4.76	52.38	19.05	100.00
1	13.99	11.40	54.92	19.69	100.00
2	13.16	7.89	44.74	34.21	100.00
Total	14.68	10.32	53.17	21.83	100.00

Pearson chi2(6) = 6.1485 Pr = 0.407  
Fisher's exact = 0.461

*Figure 22 - PPP risk: Social Dissatisfaction and business involvement, cluster 2 (%)*

Private business involvement in provision of public services	PPP risk: People unhappy about public services provided by private business				Total
	Don't know	None	Moderate	Major	
-9	37.50	12.50	12.50	37.50	100.00
1	8.23	21.21	45.02	25.54	100.00
2	18.18	9.09	27.27	45.45	100.00
Total	9.96	19.92	42.53	27.59	100.00

Pearson chi2(6) = 16.4106 Pr = 0.012  
Fisher's exact = 0.011

*Figure 23 - PPP risk: Social Dissatisfaction and business involvement, cluster 3 (%)*

Private business involvement in provision of public services	PPP risk: People unhappy about public services provided by private business				Total
	Don't know	None	Moderate	Major	
-9	53.57	0.00	21.43	25.00	100.00
1	10.73	19.77	48.02	21.47	100.00
2	14.58	27.08	43.75	14.58	100.00
Total	16.21	18.97	44.27	20.55	100.00

Pearson chi2(6) = 39.5475 Pr = 0.000  
Fisher's exact = 0.000

*Figure 24 - PPP risk: Social Dissatisfaction and business involvement, cluster 4 (%)*

Private business involvement in provision of public services	PPP risk: People unhappy about public services provided by private business				Total
	Don't know	None	Moderate	Major	
-9	38.10	19.05	28.57	14.29	100.00
1	7.65	19.39	48.47	24.49	100.00
2	20.93	13.95	37.21	27.91	100.00
Total	12.31	18.46	45.00	24.23	100.00

Pearson chi2(6) = 21.4288 Pr = 0.002  
Fisher's exact = 0.004

Respondents were to answer the question what is the risk of the situation when people are unhappy about quality of the public services provided by private business. In cluster 1, tests show that there is no association between Involvement Status and attitude to the risk of Social Dissatisfaction. Descriptive statistics also does not provide with any logic to suggest that participators and non-participators differ in their perception of Social Dissatisfaction risk: 11% of participating respondents evaluate the risk as none versus 8% of not participating respondents. The majority of respondents among participating respondents as well as among not participating respondents estimate the risk of Social Dissatisfaction with provision public services by business as moderate.

Switching to cluster 2, the picture is opposite. Respondents who participate in provision of public services differ from those who do not participate in their evaluation of the levels of the Social Dissatisfaction risk. As for participating respondents, 21% are sure that there is no risk of Social Dissatisfaction in their places and only 9% among not participating respondents have the same opinion. Observing the distribution of the risk levels' evaluation proportions, almost half of the participating respondents (45%) appraise this risk as moderate. Meanwhile, almost same proportion of not participating respondents (46%) evaluates this risk as major. Such a distribution of "None" labels verifies the initial research hypothesis about private sectors' behavior for cluster 2: business representatives who participate in provision of public services assign the lower point to the risk appraisal level than those who do not participate do.

In cluster 3, there is statistically important association between participation and risk evaluation and 20% of participating respondents estimate the risk of Social Dissatisfaction as none. Interestingly, 27% respondents in cluster 3 give the same evaluation level. The likely estimation of risk absence was given in cluster 3 when evaluating of transparency of the partner's selection process. The majority of participating and not participating respondents states that social risk is moderate (48% and 44% respectively). However, the higher share of

participating respondents (22% versus 15% who are not participating) answered that this risk is major. Probably, in cluster 3 when evaluating social factor, non-participants underestimate risk as it is observed for cluster 4 when evaluating partner's selection process.

In cluster 4, there is also statistically significant difference how participants and non-participants perceive social risk. As in most of cases, participating respondents assess more frequently the risk as none than not participating respondents (20% versus 14%). Almost half of participating respondents (48%) set the moderate value to this risk. To compare, 37% of not participating respondents think the same.

This behavior can be base for defining Social Support as a Critical Success Factor which matters in decision making about participation in provision of public services by business. It is not appropriate to tell about causality in terms of applied statistical methods, so that the result cannot be interpreted in the way: social opinion influences the investor's decision to participate or, reversely, participation experience changes the respondents' opinion. However, it is statistically adequate to claim that Social Support is a Critical Success Factor meaningful at decision making process, because there is discrepancy between participants and non-participants in how they rank the risk of Social Dissatisfaction, in other words, this factor matters for them.

#### *Analysis of the Critical Success Factor "Project Feasibility"*

*Figure 25 – Evaluation of PPP Transparency and Openness and Involvement, cluster 1 (%)*

Private business involvement in provision of public services	Evaluation of PPPs - transparency, openness and genuine competition				Total
	-9	1	2	3	
-9	42.86	0.00	38.10	19.05	100.00
1	11.40	1.04	51.30	36.27	100.00
2	26.32	0.00	42.11	31.58	100.00
Total	16.27	0.79	48.81	34.13	100.00

Pearson chi2(6) = 17.7262    Pr = 0.007  
Fisher's exact = 0.011

*Figure 26 – Evaluation of PPP Transparency and Openness and Involvement, cluster 2 (%)*

Private business involvement in provision of public services	Evaluation of PPPs - transparency, openness and genuine competition				Total
	-9	1	2	3	
-9	62.50	0.00	25.00	12.50	100.00
1	12.99	1.73	40.26	45.02	100.00
2	13.64	0.00	22.73	63.64	100.00
Total	14.56	1.53	38.31	45.59	100.00

Pearson chi2(6) = 19.0556 Pr = 0.004  
Fisher's exact = 0.019

*Figure 27 – Evaluation of PPP Transparency and Openness and Involvement, cluster 3 (%)*

Private business involvement in provision of public services	Evaluation of PPPs - transparency, openness and genuine competition				Total
	-9	1	2	3	
-9	50.00	7.14	35.71	7.14	100.00
1	13.56	6.78	50.85	28.81	100.00
2	29.17	2.08	39.58	29.17	100.00
Total	20.55	5.93	47.04	26.48	100.00

Pearson chi2(6) = 25.5656 Pr = 0.000  
Fisher's exact = 0.000

*Figure 28 – Evaluation of PPP transparency, openness and involvement, cluster 4 (%)*

Private business involvement in provision of public services	Evaluation of PPPs - transparency, openness and genuine competition				Total
	-9	1	2	3	
-9	52.38	0.00	33.33	14.29	100.00
1	13.78	3.06	43.37	39.80	100.00
2	23.26	6.98	25.58	44.19	100.00
Total	18.46	3.46	39.62	38.46	100.00

Pearson chi2(6) = 24.9983 Pr = 0.000  
Fisher's exact = 0.001

In cluster 1, there is association between attitude to the quality of the whole process of provision public services (factors constituting quality are fully described in research methodology paragraph) and participation status. Only 1% of respondents suppose that in general, the whole process of realization public services is opened, transparent and competition is genuine. There is no any respondent in cluster 1 who would not participate and assess this risk

as none. Meanwhile, half of participating respondents (51%) believe that risks associated with contract feasibility, public partner's policy and quality of competition are moderate. As for not participating respondents, 42% trust in the same level of risks and quite significant part of not participating respondents (26%) do not know how to evaluate these risks.

In cluster 2, the statistical interconnection of observed categories is proved as well. Proportion of "None" risk level is 2% among participants and again there is no respondent who would appraisal risk absence and would not participate the same time. As for participators, respondents' opinions are divided between moderate and major risk levels almost equally (40% and 45% respectively). The highest share of not participating respondents (64%) estimates this risk as major.

Respondents' behavior in cluster 3 toward the whole evaluation of PPP strongly supports the research logic. Participators and non-participators differ in their estimation and participators estimate risks not so strictly in comparison with how non-participators do. It is worthwhile to notice, that cluster 3 is characterized by higher share of participating respondents who evaluate this risk as none than it is in the other clusters (7% of participants answered "None" versus 2% of non-participators thinking same). Half of participating respondents believe that the risk of bad quality of the project briefing, clearness of the contract terms and other drawbacks destroying PPP project Transparency and Openness is moderate (50%). Only 40% of non-participators suppose same and 30% of non-participators are not able to make an evaluation.

In cluster 4, participators and non-participators statistically differ in how they estimate PPP Openness, public partner's policy clearness and transparency. The estimation of the risk as none is up to 3% among participators and 7% among non-participators. However, most part of non-participators believes that this risk is major (44%). Speaking about participators, the estimation focus of the risk is switched to the moderate level (43% of participators answered that the risk is moderate versus 26% of non-participators answered same).

# *Analysis of the Critical Success Factor “Government Support”*

*Figure 29 – Evaluation of the regional legislation and involvement, cluster 1 (%)*

Private business involvement in provision of public services	Positive changes in regional legislation over the last 2-3 years			Total
	Don't know	Yes	No	
-9	28.57	38.10	33.33	100.00
1	17.10	24.35	58.55	100.00
2	10.53	21.05	68.42	100.00
Total	17.06	25.00	57.94	100.00

Pearson chi2(4) = 7.2189 Pr = 0.125

Fisher's exact = 0.114

*Figure 30 – Evaluation of the regional legislation and involvement, cluster 2 (%)*

Private business involvement in provision of public services	Positive changes in regional legislation over the last 2-3 years			Total
	Don't know	Yes	No	
-9	50.00	12.50	37.50	100.00
1	14.72	36.36	48.92	100.00
2	9.09	22.73	68.18	100.00
Total	15.33	34.48	50.19	100.00

Pearson chi2(4) = 10.8794 Pr = 0.028

Fisher's exact = 0.053

*Figure 31 – Evaluation of the regional legislation and involvement, cluster 3 (%)*

Private business involvement in provision of public services	Positive changes in regional legislation over the last 2-3 years			Total
	Don't know	Yes	No	
-9	42.86	35.71	21.43	100.00
1	12.43	31.64	55.93	100.00
2	18.75	27.08	54.17	100.00
Total	17.00	31.23	51.78	100.00

Pearson chi2(4) = 19.3546 Pr = 0.001

Fisher's exact = 0.001

*Figure 32 – Evaluation of the regional legislation and involvement, cluster 4 (%)*

Private business involvement in provision of public services	Positive changes in regional legislation over the last 2-3 years			Total
	Don't know	Yes	No	
-9	28.57	9.52	61.90	100.00
1	16.84	19.39	63.78	100.00
2	11.63	4.65	83.72	100.00
Total	16.92	16.15	66.92	100.00

Pearson chi2(4) = 9.9416 Pr = 0.041  
Fisher's exact = 0.035

PPP pioneer, cluster 1, demonstrates that there is no statistically significant difference between participation status of respondents and their opinion about positive changes in regional legislation over last 2-3 years. The share of participating respondents who agree that positive changes occurred (24%) is almost the same as proportion of not participating respondents having the same opinion (21%). Regional legislation in cluster 1 is characterized by relatively high level of PPP regional legislation and the other regulative acts supporting PPP indirectly that can explain respondents' indifference concerning their participation status to the positive legislation changes in cluster 1.

Although Chi-square test result and Exact test result are controversial, it is lawfully to make a conclusion that there is a statistical connection between participation status and evaluation of the legislation changes in cluster 2. Such statement is made in favor of Chi-square test result because the sample size of cluster 2 complies with size limitation requirements needed for Chi-square test. Thus, there is no necessity to pay attention to Exact test statistics.

The proportion of participating respondents who believe in presence of positive legislation versus the proportion of not participating respondents with the same point of view is 36% to 23% respectively. As it is shown on the Figure 30, those respondents who participate answered more frequently that regional legislation has been upgraded than non-participants do. Besides, 68% of not participating respondents did not find any possible changes in the regional legislation boosting PPP development.

Cluster 3 reveals similar tendency but the answers of both categories of respondents are more balanced toward to each other than it is in cluster 2. First of all, participators and non-participators statistically differ in their opinion whether legislation improvement happened or did not. However, if turning to the descriptive statistics, this difference is not very high in percentage: 32% of participators and 27% of non-participators agree that the regional legislation has been improved.

In cluster 4, there is statistically significant association between Involvement Status and respondents' perception of legislation changes. Moreover, there is huge contrast between opinions of participating and not participating respondents: 19% of participating respondents believe that Positive Changes in Legislation has occurred and only 5% of not participating respondents agree with this position while 84% of them consider that there have not been no any positive change in legislation over last 2-3 years.

### **3.3 The portrait of the Russian regional investors relatively to their Critical Success Factors' evaluation**

This paragraph represents a summary of analysis done and results in the Table reflecting presence of statistically significant interconnection between business Involvement Status and their evaluation of PPP CSFs in the Russian regions.

When evaluating the attitude of respondents to the PPP Critical Success Factor "Financing availability" respondents were to estimate the risk of Termination of Financing due to lack of / lower budget revenue. Statistically significant association between respondents' involvement in provision of public services and the estimated level of risk of Termination of Financing is detected for clusters 3 and 4 characterized by lower PPP development environment. Moreover, in cluster 3, major level of this risk is more widespread among participators. Analysis of this financial risk in clusters 1 and 2 shows that there is no interrelation between project Financial Availability and the fact whether respondents participate in provision of public services or they do not.

For making estimation on interconnection between investors' involvement and their opinion on the quality of tendering (selection process of a private partner) respondents were to rate the level of risk of Lobbying and Non-Transparent Selection Process in their regions. As in case of appraisal of project Financial Availability importance, participators and non-participators in provision of public services in clusters 1 and 2 do not differ significantly by their estimation of the level of the quality of selection process. Oppositely, there is difference between those who participate in provision of public services and those who do not take a part in their attitude to selection process in lower PPP-developed clusters 3 and 4.

Interestingly that in cluster 3, participators rank Lobbying and selection risk as major more frequently than non-participators do and in cluster 4, there is a little bit higher proportion of not participating respondents in terms of "None" risk category, than participating. Besides, not participating respondents rank this risk as major less frequently there. Concerning the fact that association between participation and risks evaluation is confirmed here, probably, this proportion's distribution demonstrates the situation that respondents who have not taken ever a



part in provision of public services could hardly imagine possible obstacles appearing during selection process of a partner.

Analysis of contingency tables and chi-square statistics for evaluation of Social Support factor clearly reflects the initial research hypothesis that association between studied categories takes a place and non-participators in provision of public services assess presented levels of PPP risks higher than participators do. Moreover, the results were not so obvious and demonstrate variation of association presence by clusters. In cluster 1 this factor does not relate to participation status. Taking into account the fact that this cluster is most PPP developed in the survey time period, it is logical to make a suggestion that the quality of public services provided by business there is quite good. The other developing clusters demonstrate sensitivity of participation in public services to the Social Support. Moreover, participated respondents evaluate risks of citizens' dissatisfaction with public services provided by business lower than not participating respondents do evaluate. Such behavior shows that Social Support could be a Critical Success Factor when making participation decisions in 2, 3 and 4 clusters.

The Critical Success Factor "Project Feasibility" incorporating the quality of project assessment (realistic Costs and Benefits analysis), clear Client Requirements and Appropriate Project Identification, has been defined as PPP Evaluation: Openness and Transparency. Respondents were asked to rank Transparency and Openness level of PPP. The statistical test shows that this success critical factor matters in all clusters. Moreover, in cluster 3, respondents assess Transparency and Openness more positively than it has been done in the other clusters. In cluster 2, quite high share of non-participators assign to this risk major category (64%). Participators evaluate this risk as major not so often. The very small share of respondents thinks that this risk is absent and there almost no not participating respondents who rank risk as none.

The "Government Support" factor is significant in relation to Involvement Status in all clusters. Besides, in clusters 2 and 4 there is a very high share of non-participators who reject positive legislation changes. In cluster 2, more than 60% of non-participating respondents think that there have been no positive changes, and in 4 clusters, more than 80 % of those not participating believe as well that there have been no positive changes. As for cluster 4, the percentage of non-participating respondents who acknowledge that there have been positive changes has noticeably decreased (only 4% of these). An interesting situation occurs in cluster 3: associative link is significant, but there is not much difference between how participating and non-participating respondents evaluate legislation changes.

The Table 5 demonstrates in which cases the interconnection between studied categories is statistically significant.

Table 5 – PPP Critical Success Factors significant in the Russian regions

Cluster	Critical Success Factors				
	Availability of financing	Transparent Selection Process	Social Support	Government Support	Project Feasibility
<b>Cluster 1</b> Saint Petersburg Republic of Tatarstan Voronezh Region Yaroslavl Region Belgorod Region Nizhni Novgorod Region Kaluga Region Novosibirsk Region Rostov Region	-	-	-	-	+
<b>Cluster 2</b> Sverdlovsk Region Moscow City Krasnoyarsk Territory Krasnodar Territory Kirov Region Ulyanovsk Region Leningrad Region Lipetsk Region Moscow Region	-	-	+	+	+
<b>Cluster 3</b> Omsk Region Samara Region Irkutsk Region Volgograd Region Tomsk Region Stavropol Territory Kemerovo Region Kursk Region Murmansk Region	+	+	+	+	+
<b>Cluster 4</b> Tver Region Chelyabinsk Region Republic of Sakha (Yakutia) Smolensk Region Republic of Bashkortostan Perm Territory Kaliningrad Region Khabarovsk Territory Republic of Mordovia Primorsky Territory	+	+	+	+	+

Source: made by author.

## Conclusion

Critical Success Factors are essential elements included in process of achieving project goals. They play the role of triggers or necessary conditions boosting successful implementation of the project. The project success relies heavily on managers' maturity on Critical Success Factors (Babatunde, Perera, and Lei 2016). In turn, project success is measured through degree of achieving desirable outcome of the project. In terms of PPPs, Critical Success Factors are important areas to concentrate on for successful PPP project realization. Providing assumption that business tends to participate in successful PPP, Critical Success Factors are needed to be focused to understand and create PPP climate's conditions sufficient for attracting investors into PPPs. Whether the factor critical or not is defined by subjective judgement of managers (expert opinion). *The most widespread PPP Critical Success Factors in the literature are Financial Availability, Social and Government Support, Project Feasibility and Transparent Selection Process.*

Survey respondents are not positive much about the level of development PPP CSFs in their regions. *Respondents evaluate most frequently social support positively, and, on the contrary, government support is least likely to be believed in.* The risk of Social Dissatisfaction with the quality of public services provided by business is moderate in all clusters. The highest proportion of respondents is sure that there have been no any Positive Changes toward PPP development in the Regional Legislation over last 2-3 years.

Interesting that in lower PPP-developed clusters participants tend to believe that Selection Process and Financial Availability are on the moderate level. In higher PPP-developed clusters it is hardly possible to claim that participators in provision of public services are more positive about PPP CSFs condition than non-participators think. Summing up, *in less PPP-developed clusters participators evaluate factors' conditions better.* Probably, in higher developed clusters participators are aware of risks and ready to take them.

As for the quality of interconnection between respondents' Involvement Status and their estimation of PPP risks (used for assessment of PPP CSFs condition), the association between these two categories has been statistically confirmed in following cases. In cluster 1, only Project Feasibility matters in decision making about participation in provision of public services. In cluster 2, Government and Social Support and Project Feasibility are associated with the Involvement Status. In the lower PPP-developed clusters 2 and 4, level of evaluation of all observed factors is statistically significant for the fact whether respondents participate in provision of public services or do not. *Therefore, the higher level of PPP development is the fewer factors to which cluster's respondents are sensitive to.*

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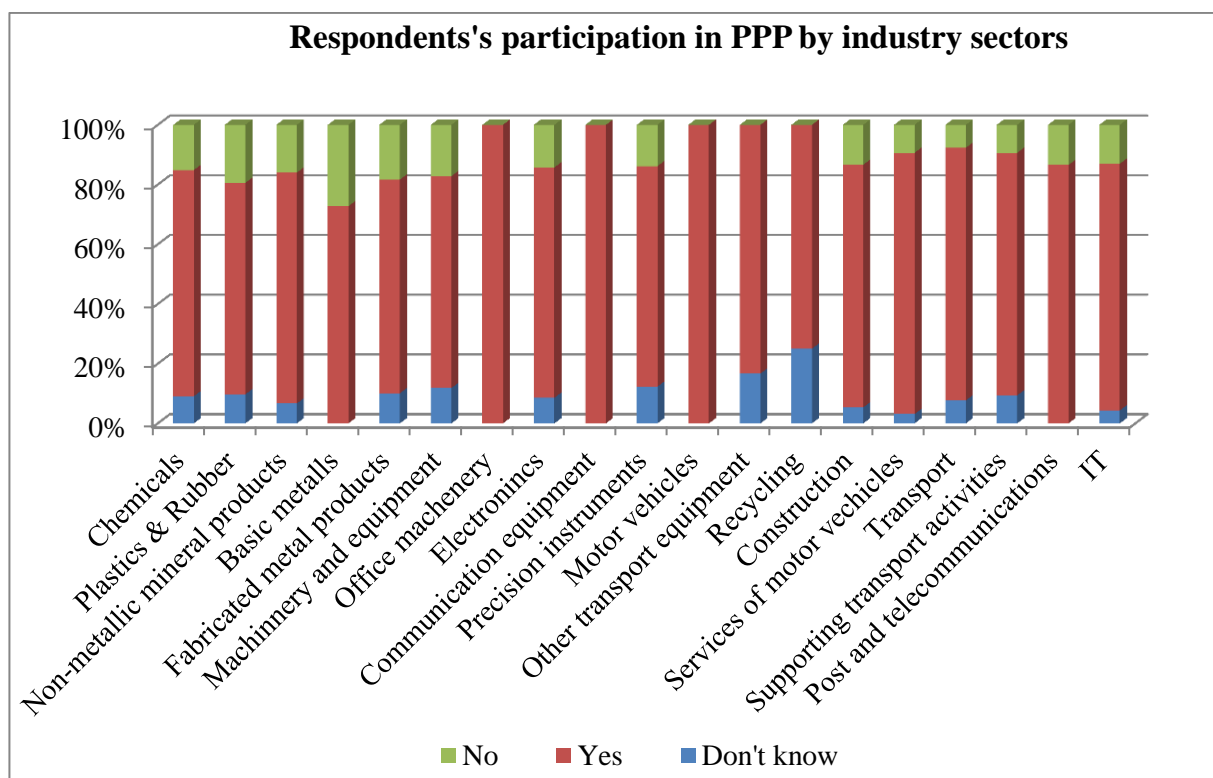
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## Appendixes

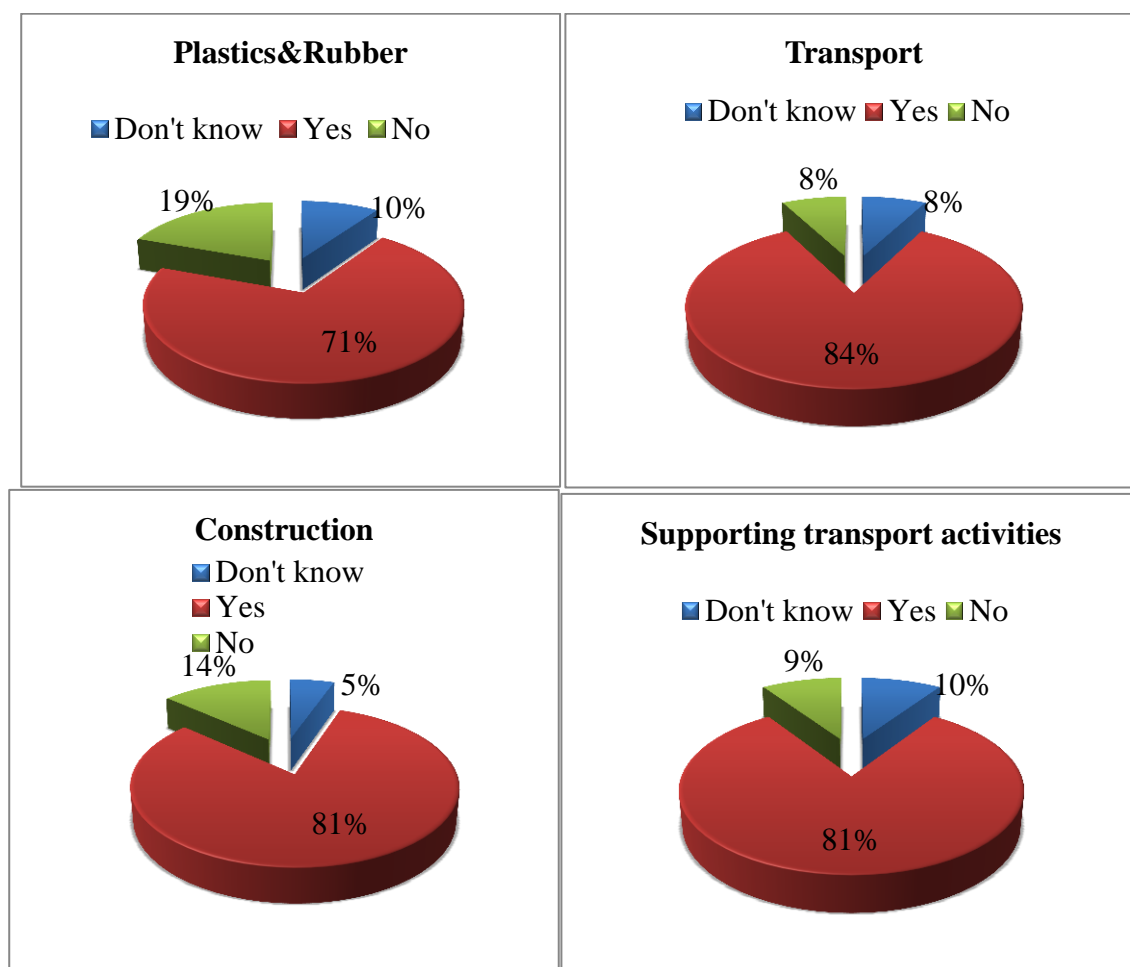
### Appendix 1. Sample structure by industry sectors

Figure 1 – Sample structure by industry sectors



*Appendix 2. Sample structure by most relative to PPP industry sectors*

*Figure 2 – Sample structure by most relative to PPP industry sectors*



### Appendix 3. Sample structure by industry regions

Figure 3 – Sample structure by industry regions

